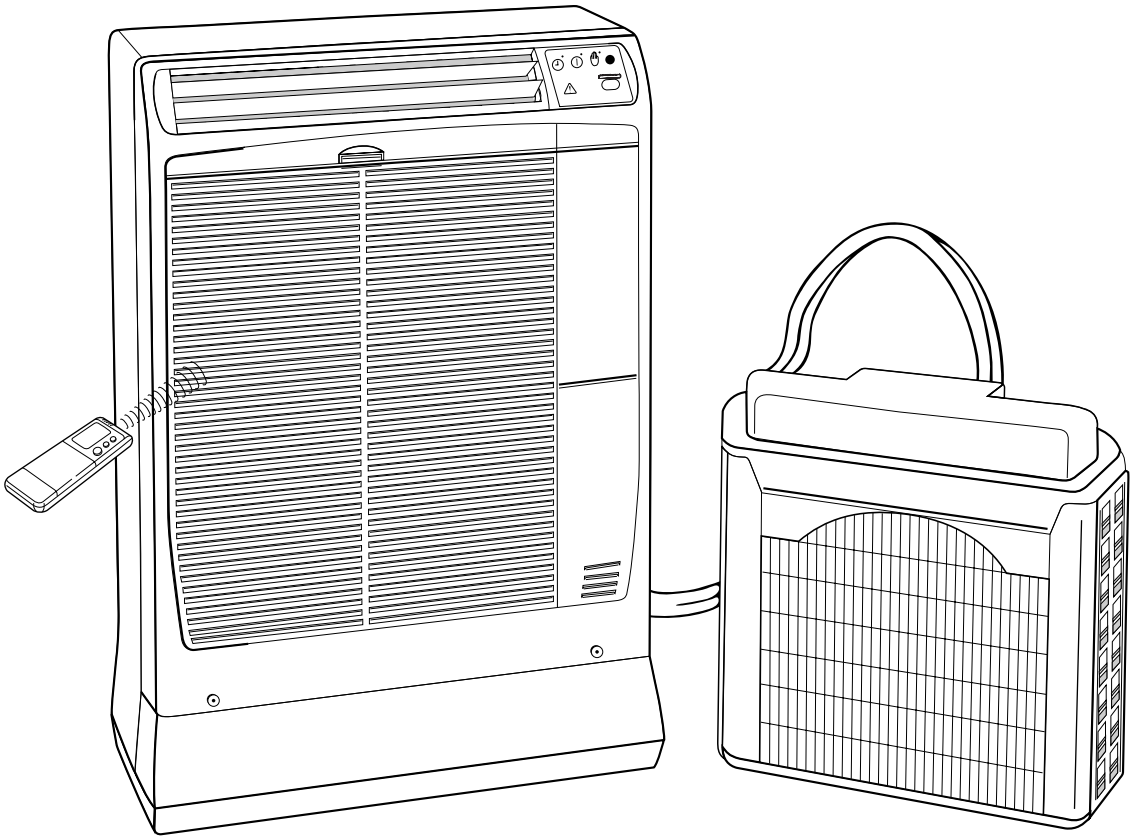
TECHNICAL DATA & SERVICE MANUAL

Ulisse



Ulisse 10 - AUR101CL

Ulisse 13 - AUR131CL

COOLING ONLY VERSION (R407C)

Ulisse HL - AUR101HL

HEAT PUMP VERSION (R407C)

ROOM AIR CONDITIONER WITH REMOTE CONDENSER

0.8180.237.0 04/2002

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A SPECIFICATIONS

1) UNIT SPECIFICATIONS

UNIT MODEL			AUR101CL	AUR131CL	AUR101HL	
Power source			220 - 240 V ~ 50 Hz			
PERFORMANCES			**COOLING**		**COOLING**	**HEATING**
Capacity		BTU / h	9045	12525	9560	10720
		W	2650	3670	2800	3140
Air circulation (high/med/low)		m^3 / h	370/340/270	450/400/340	370/340/270	
Moisture removal (high speed)		l /h	1.2	1.5	1.2	
ELECTRICAL RATINGS						
Voltage rating		V	220 ÷ 240			
Available voltage range		V	198 ÷ 264			
Running ampere		A	4.4	6.2	4.2	4.3
Power input		W	980	1300	940	950
Power factor		%	97	91	97	96
C.O.P.		W/W	2.70	2.82	2.98	3.31
Compressor locked rotor amperes		A	23	34	23	
FEATURES						
Controls / temperature control			Microprocessor / I.C. Thermostat			
Control unit			Wireless remote control unit			
Timer			ON / OFF 24 hours and program			
Fan speed indoor / outdoor			3 and auto / 1			
Airflow direction (Indoor)		Horizontal	Manual			
		Vertical	Manual			
Air filter			Washable, easy access			
Compressor			Rotary (hermetic)			
Refrig./Stand. charge at shipmen		g	910	1220	1030	
Tot. refrig. charge with 2 m extension		g	960	1270	1090	
Tot. refrig. charge with 4 m extension					1150	
Refrigerant control			Capillary tube			
Sound level		Indoor Hi/Me/Lo dB-A	44 / 40 / 39	46 / 42 / 41	44 / 40 / 39	
		Outdoor Hi dB-A	54	51	51	
Stand. tubing length		m	~ 2.5			
Tubing length with 2 m extension kit		m	~ 4.5			
Tubing length with 4 m extension kit		m	~ 6.5			
DIMENSIONS AND WEIGHT			**UNIT DIMENSIONS**			
Indoor unit	Height	mm	790			
	Width	mm	580			
	Depth	mm	245			
Outdoor unit	Height	mm	435	490	490	
	Width	mm	440	525	525	
	Depth	mm	230	250	250	
Net weight / indoor unit - outdoor unit		kg	44 / 9.5	44 / 15	44 / 15	

NOTA

Data subject to change without notice.

Rating conditions:

Cooling: outside air temp.: 35°C DB, indoor unit entering air temp.: 27 °C DB, 19 °C WB
Heating: outside air temp.: 7°C DB, 6 °C WB, indoor unit entering air temp.: 20 °C DB

2) MAJOR COMPONENT SPECIFICATIONS

a) INDOOR UNIT

MODEL			AUR101CL	AUR131CL	AUR101HL
CONTROLLER P.C.B.					
Controls			Microprocessor		
Control circuit fuse			250 VAC - 3.15 A		
FAN & FAN MOTOR			Cross flow		
Number / Diameter / Lenght		mm	1 / ø 100 / L 410		
Nominal output		W	27		
Coil resistance (at 25 °C)		Ω	GRY-WHT: 545 ÷ 630 WHT-VLT: 92 ÷ 105 VLT-YEL: 62 ÷ 71 GRY-BRN: 78 ÷ 90		
Safety device			Internal type		
Setting	Open	°C	150 ± 10		
	Close	°C	Automatic		
Run capacitor (C1)		μF	1.0	1.5	1.0
		VAC	440	440	440
THERMISTOR (COIL SENSOR) TH1			NTC SENSOR		
Resistance (at 25 °C)		kΩ	10 ± 5%		
THERMISTOR (ROOM SENSOR) TH2			NTC SENSOR		
Resistance (at 25 °C)		kΩ	10 ± 5%		
COMPRESSOR (Rotary hermetic)			**80228245B**	**80235245B**	**80228245B**
Nominal output		W	950	1290	950
Compressor oil		cc	500	550	500
Coil resistance (at 20 °C)		Ω	C-R: 3.01 ± 7%	C-R: 1.92 ± 7%	C-R: 3.01 ± 7%
			C-S: 7.02 ± 7%	C-S: 5.29 ± 7%	C-S: 7.02 ± 7%
SAFETY DEVICES					
Overload relay (OLR)			MST20ALU-9201		MST20ALU-9201
Operating temperature	Open	°C	135 ± 5	//	135 ± 5
	Close	°C	69 ± 11	//	69 ± 11
Operating amperes (at 25 °C)			Trip in 6 ÷ 16 s at 19 A	//	Trip in 6 ÷ 16 s at 19 A
Overload relay (OLR1)				CS-7C115	
Operating temperature	Open	°C	//	115 ± 4	
	Close	°C	//	95 ± 10	
Overload relay (OLR2)				MST56ALU-9202	
Operating temperature	Open	°C	//	150 ± 5	
	Close	°C	//	69 ± 11	
Operating amperes (at 25 °C)			//	Trip in 6 ÷ 16 s at 22.5 A	//
Run capacitor (C3)					
Capacity		μF	22.5	25	22.5
Voltage		VAC	450	450	450
CONDENSATE PUMP (PC)			**PC 95643**		
Rating			230 V ~ 50 Hz		
Nominal output		W	12 ± 10 %		
Coil resistance (at 20 °C)		Ω	122 ± 10 %		
PUMP RELAY (RP)			**FINDER 60.62**		
Coil rating			230 V ~ 50 Hz		
Coil resistance (at 20 °C)		kΩ	7.25 ± 10 %		
Contact rating			10 A - 250 V		
FLOAT MICROSWITCH (MS)			**CROUZET F83161.3**		
Contact rating			10 (4) A - 250 VAC		
Float		Up	Open		
		Down	Close		
SOLENOID VALVE (4 WAY VALVE)					
Coil rating			//	//	230 V ~ 50 Hz - 6 W
Coil resistance (at 20 °C)		Ω	//	//	1440 ± 5 %
HEAT EXCHANGE COIL					
Coil			Aluminium plate fin / Copper tube		
Rows			2		
Fin pitch		mm	1.8		
Face area		m^2	0.185		

b) OUTDOOR UNIT (LITTLE BAG)

MODEL			AUR101CL	AUR131CL	AUR101HL
FAN & FAN MOTOR			Propeller	Propeller	Propeller
Number / Diameter		mm	1 / ø 320	1 / ø 380	1 / ø 380
No of pole / rpm (220 V, high)			4 / 1205	6 / 860	6 / 860
Nominal output		W	58	70	70
Coil resistance (at 25 °C)		Ω	BLU-BRN: 249 ÷ 287	BLU-BRN: 218 ÷ 251	BLU-BRN: 218 ÷ 251
			BLU-BLK: 270 ÷ 311	BLU-BLK: 230 ÷ 265	BLU-BLK: 230 ÷ 265
Safety device			Internal type		
Setting	Open	°C	150 ± 10		
	Close	°C	Automatic		
Run capacitor (C2)		μF	2.0	2.5	2.5
		VAC	450	450	450
THERMISTOR (COIL SENSOR) TH3			NTC SENSOR		
Resistance (at 25 °C)		kΩ	10 ± 1%		
HEAT EXCHANGE COIL					
Coil			Aluminium plate fin / Copper tube		
Rows			2	2	2
Fin pitch		mm	1.6	1.6	1.6
Face area		m^2	0.227	0.290	0.290

B OPERATING RANGE

COOLING MODELS

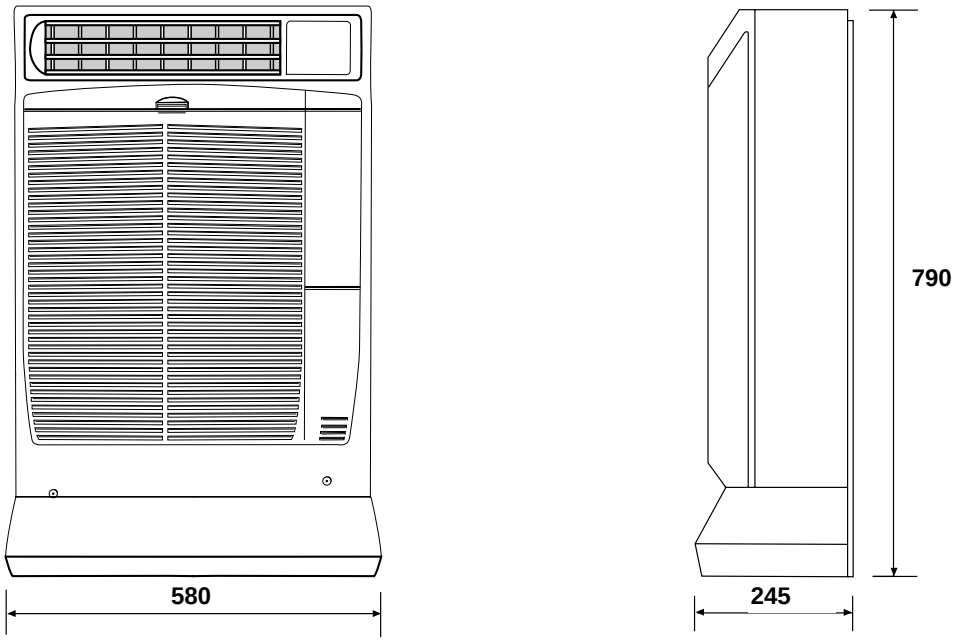
	Temperature	Indoor air intake temperature	Outdoor air intake temperature
Cooling	Maximun	32 °C DB / 23 °C WB	46 °C DB
	Minimum	19 °C DB / 14 °C WB	19 °C DB

HEAT PUMP MODELS

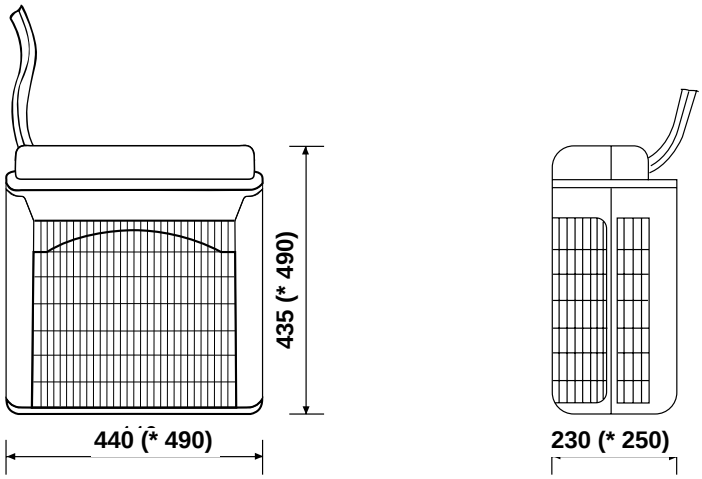
	Temperature	Indoor air intake temperature	Outdoor air intake temperature
Cooling	Maximun	32 °C DB / 23 °C WB	46 °C DB
	Minimum	19 °C DB / 14 °C WB	19 °C DB
Heating	Maximun	27 °C DB / 19 °C WB	24 °C DB / 18 °C WB
	Minimum	- DB / - WB	-8 °C DB / -9 °C WB

C DIMENSIONAL DATA

Indoor unit



Outdoor unit



DIMENSIONS: mm

* HEAT PUMP MODEL AND AUR131CL

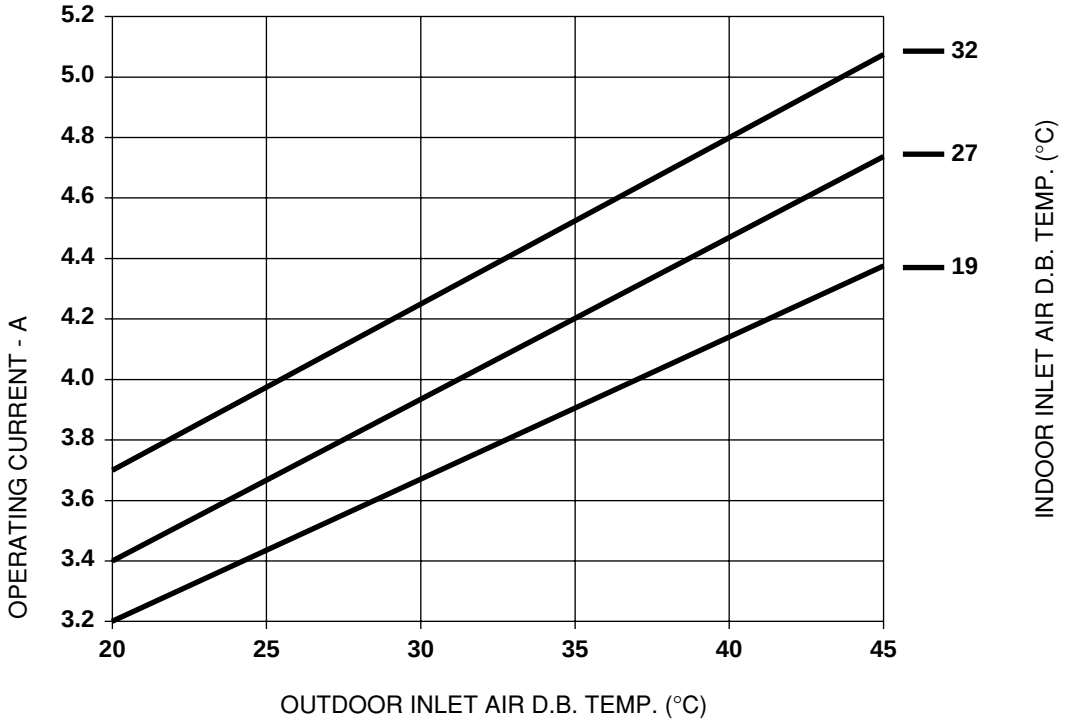
D PERFORMANCE CHARTS

Operating characteristics versus outdoor ambient temperature and indoor temperature.

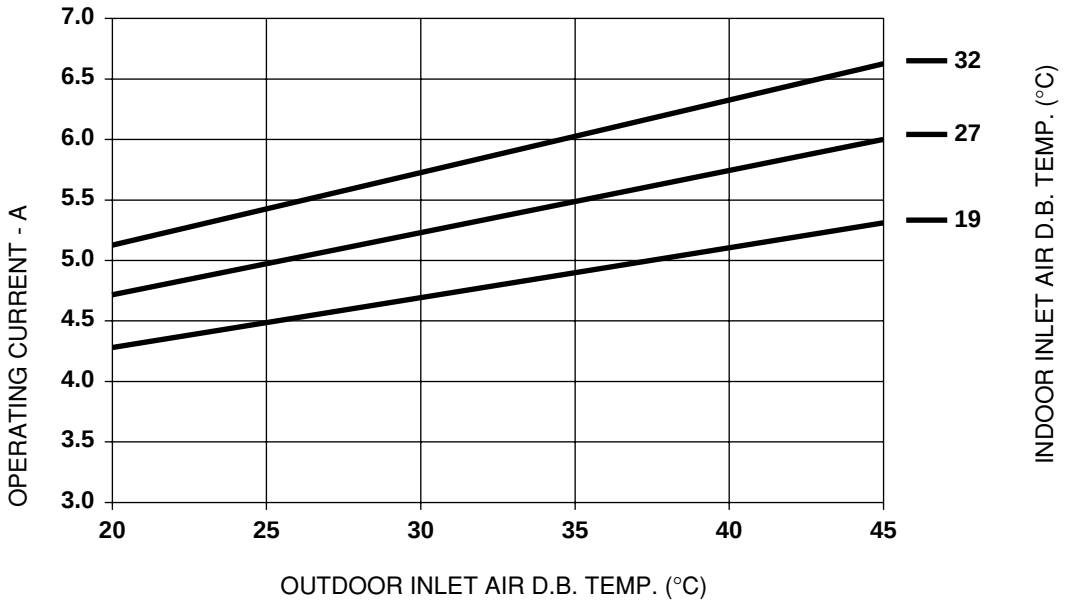
Conditions:	Power source	230 V - 1 - 50Hz - Single phase
	Indoor air velocity	High
	Refrigerant	Amount charged at shipment
	Tubing length	2,5 m

Cooling characteristics
Indoor relative humidity 46%

AUR101CL



AUR131CL



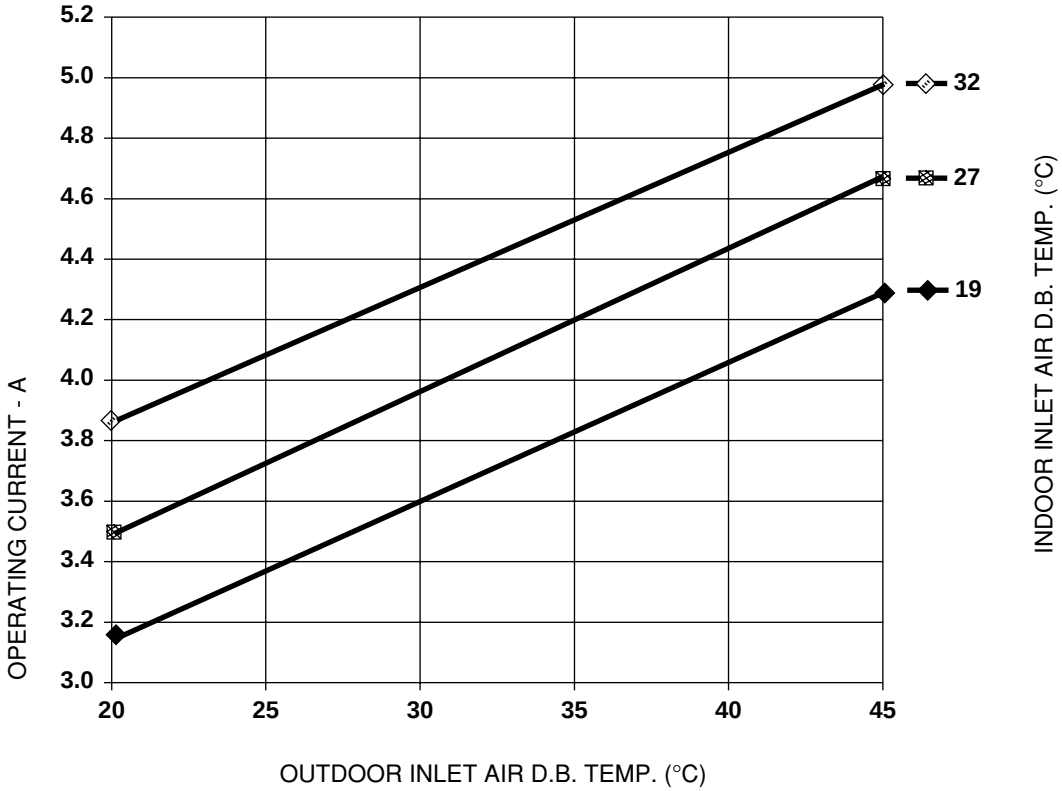
Operating characteristics versus outdoor ambient temperature and indoor temperature.

Conditions:		
	Power source	230 V - 1 - 50Hz
	Indoor air velocity	High
	Refrigerant	Amount charged at shipment
	Tubing length	2,5 m

HEAT PUMP MODELS

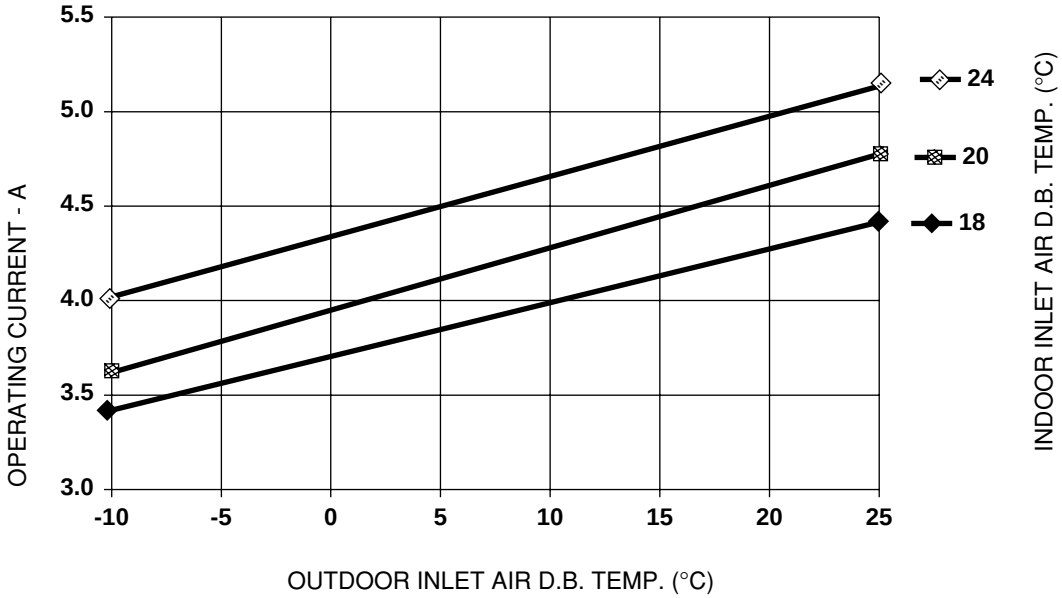
Cooling characteristics

Indoor relative humidity 46%

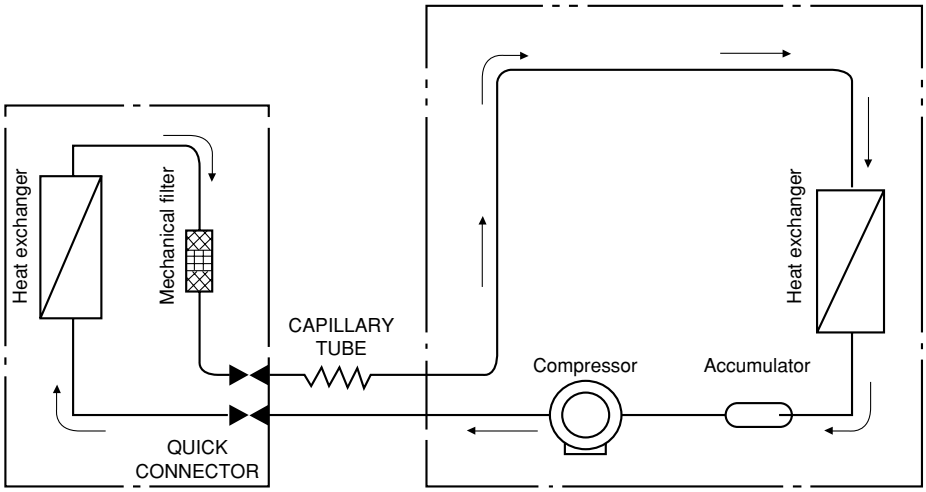


Heating

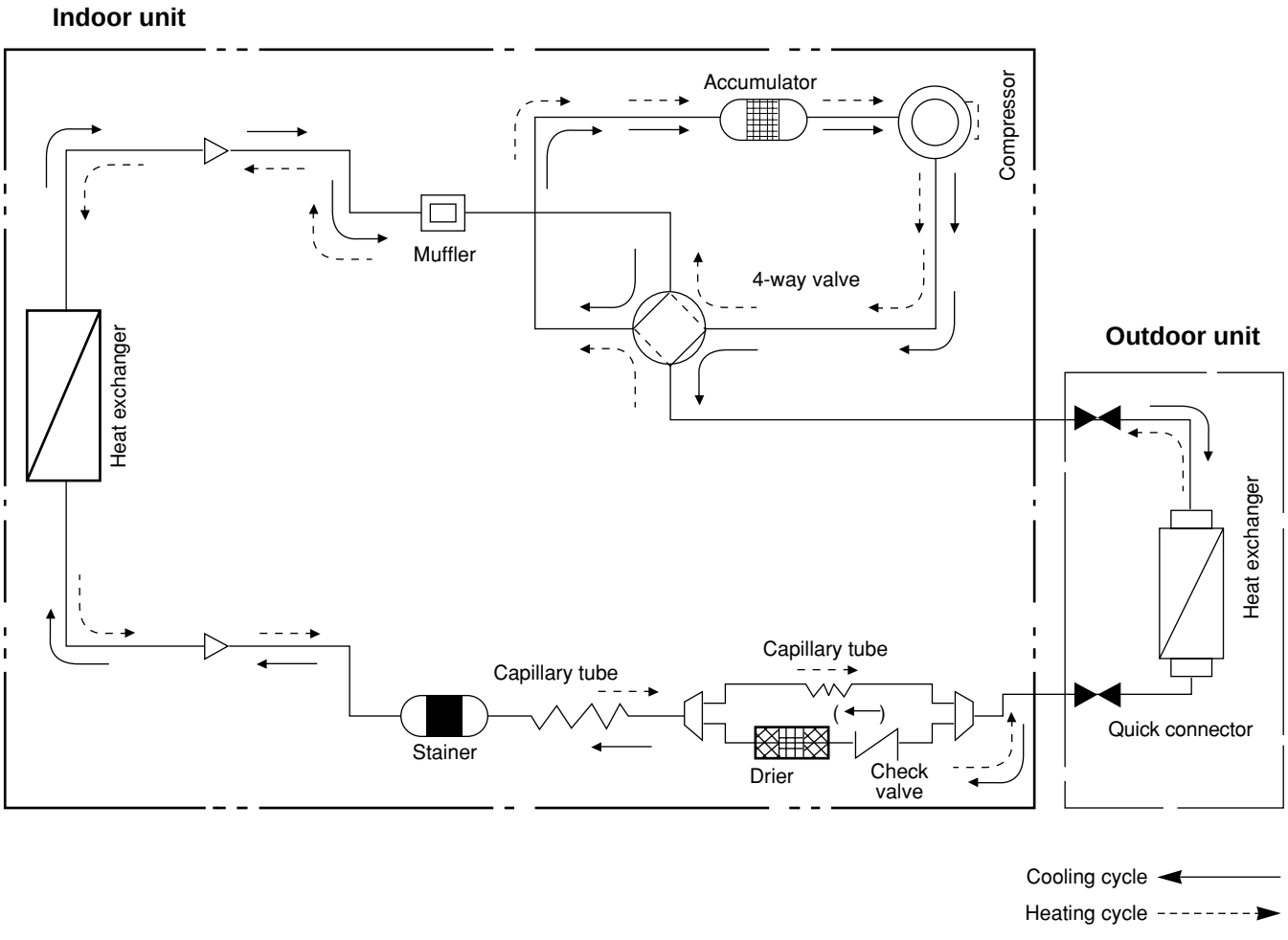
Outdoor relative humidity 85%



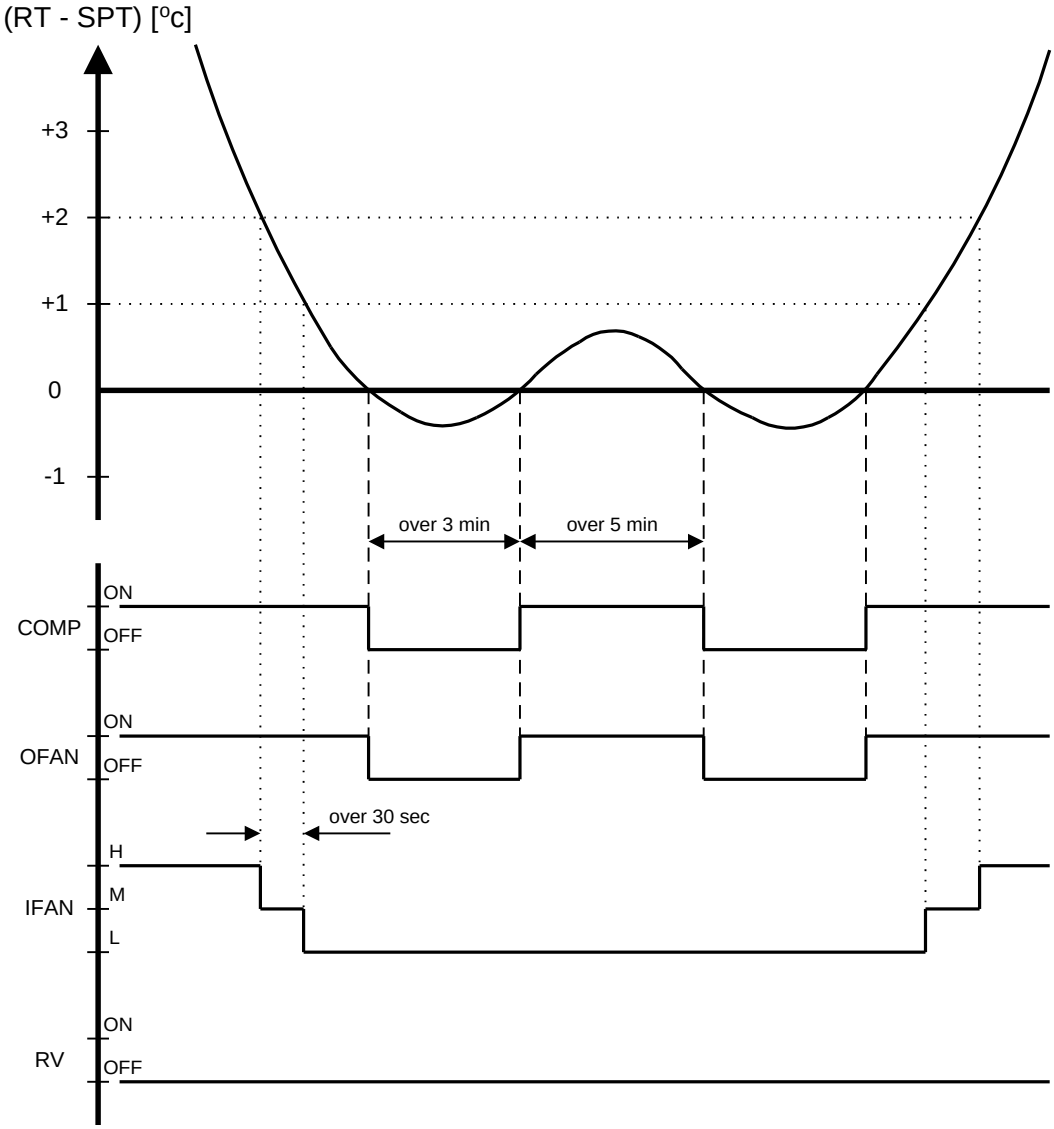
E REFRIGERANT FLOW DIAGRAM COOLING MODELS



REFRIGERANT FLOW DIAGRAM HEAT PUMP MODELS



1 Cool Mode Operation

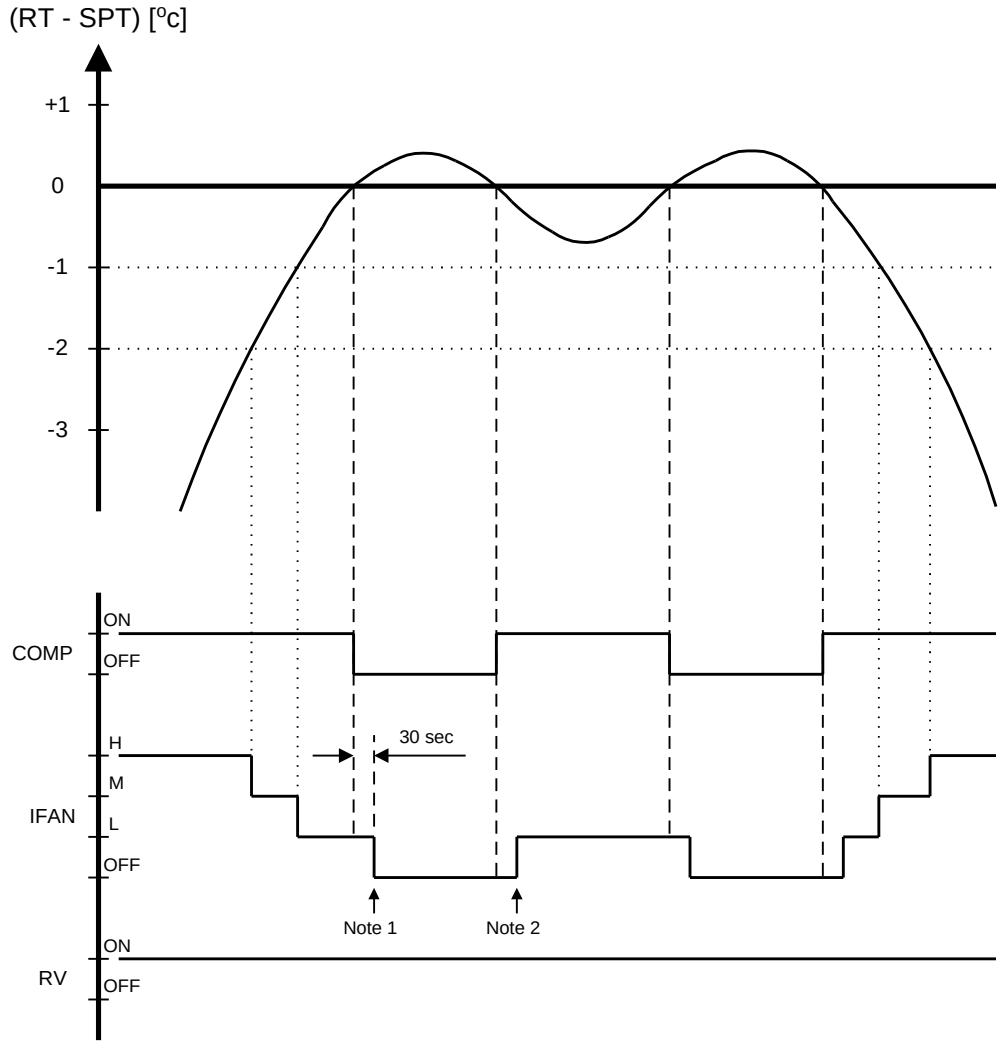


In Cool Mode, the operation of the Compressor (COMP), Outdoor Fan (OFAN) and Indoor Fan (IFAN) are determined by the difference between the Room Temperature (RT) and the Set Point Temperature (SPT) as in the graph above.

Notes:

1. In this graph, the IFAN is operating in the "Auto Fan Speed" setting. If the user has selected the low, medium or high fan speed, the IFAN will run constantly at that speed only.
2. In addition to the value of (RT-SPT), the operations of the relays are also controlled by protection delays. For example, (a) the minimum On/Off time of the COMP is 5 min and 3 min respectively, and (b) the IFAN can change speed only after it has operated at the same speed for 30 sec.

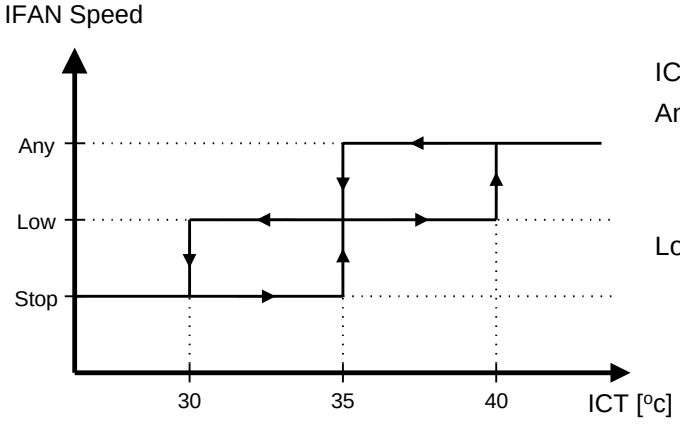
2 Heat Mode Operation



The Heat Mode operation is similar to the Cool Mode operation. The COMP, OFAN and IFAN are mainly controlled by the value of (RT – SPT). In the graph above, the IFAN is operating in Auto Fan speed mode. Therefore, the IFAN speed changes automatically according to the (RT - SPT).

Note 1: The 30s IFAN operation is for purging the heat from the in-coil after COMP has stopped.

Note 2: The IFAN will not be turned on until the in-coil temperature is high enough (as shown in the graph below) to prevent the unit from supplying cool air.

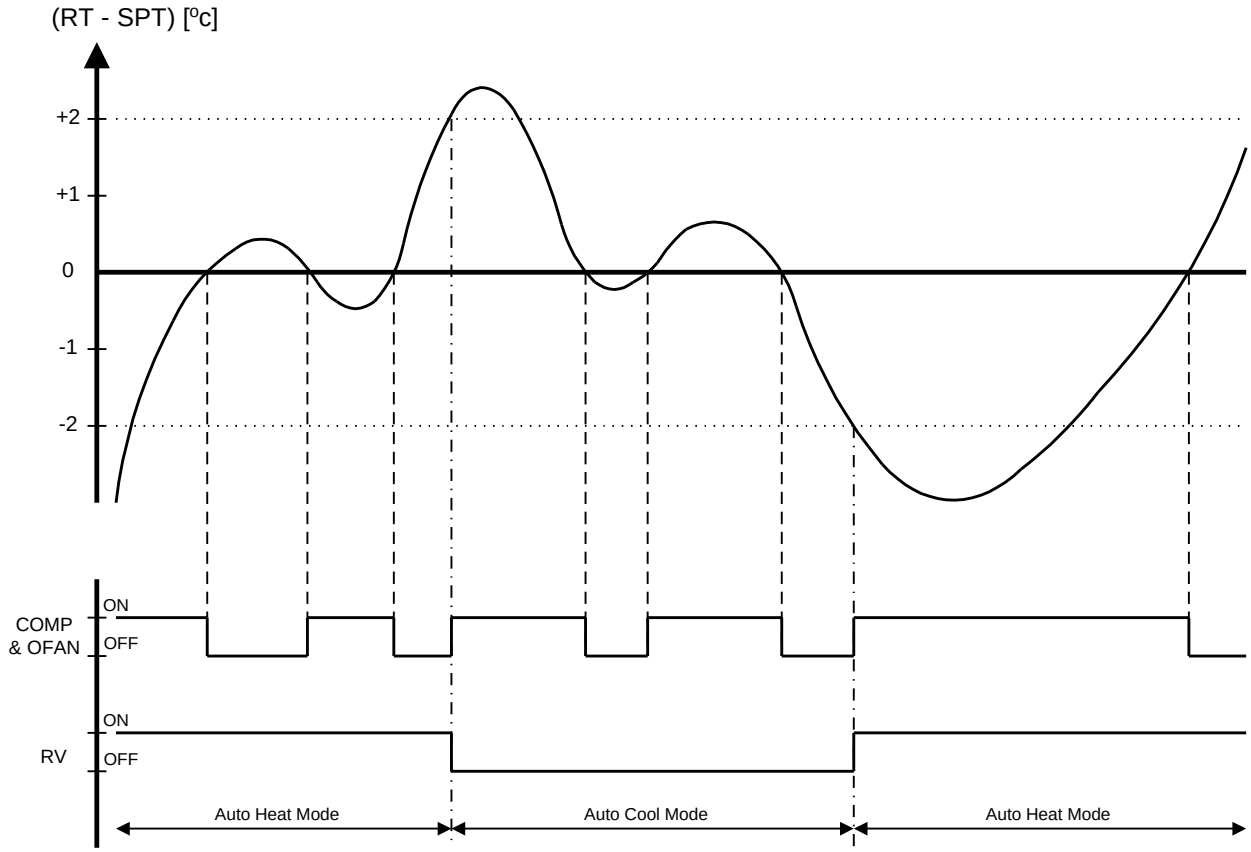


ICT = In-coil Temperature

Any = Hi, Med or Low fan speed which is selected by the user. In Auto Fan Speed Mode, the fan speed is selected by the unit automatically instead.

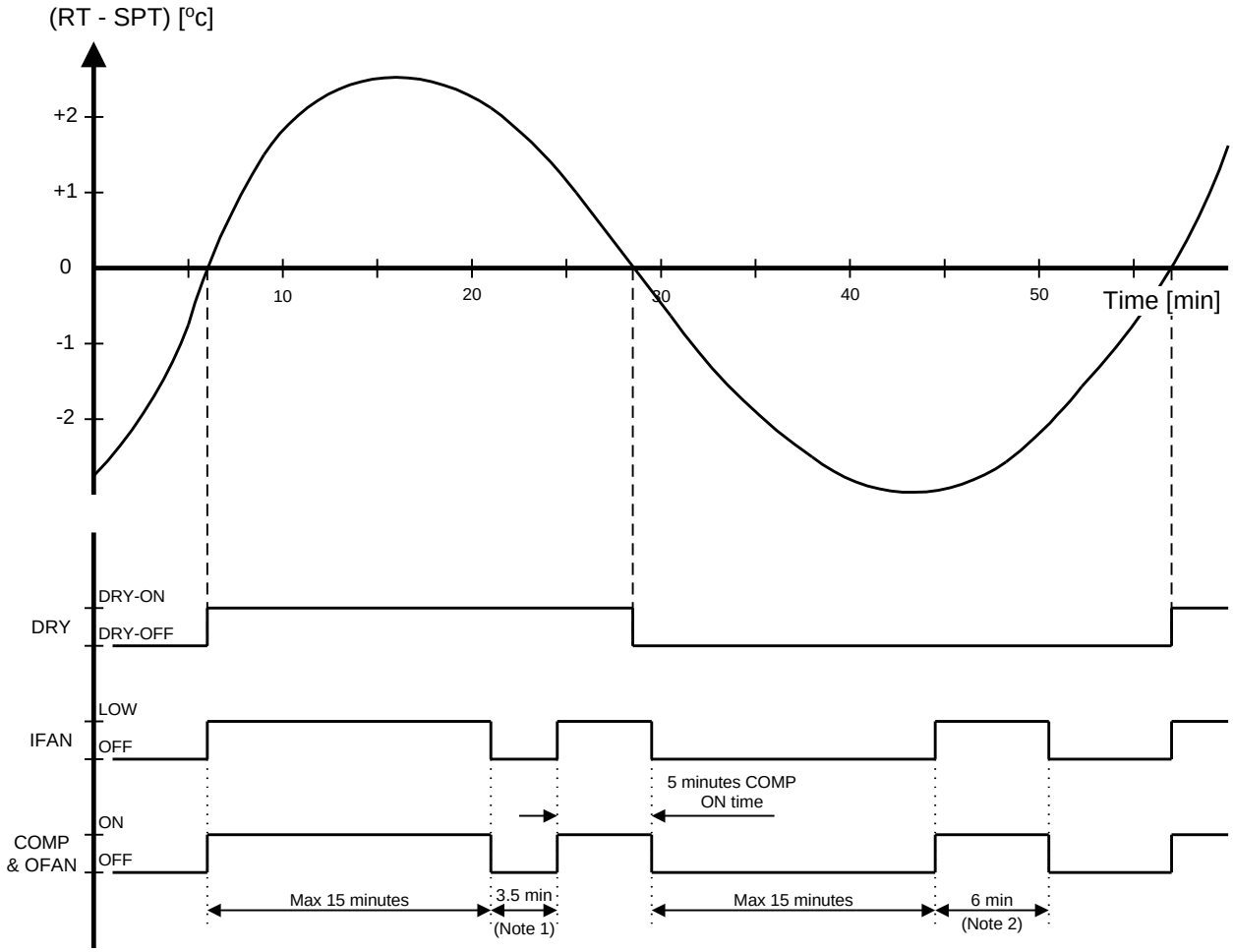
Low = The indoor fan is forced to operate at low speed

3 Auto (Cool/Heat) Mode Operation



In Auto Mode, the unit switches between the Auto Cooling Mode and Auto Heating Mode automatically to maintain the room temperature (RT) at the set point temperature (SPT).

4 Dry Mode Operation



In Dry Mode, the unit operates in a mild cool mode to lower the humidity of the room. In order to maintain a high efficiency in the drying operation without over lowering the room temperature excessively, the Dry Mode is different from the Cool Mode in two ways.

1. The IFAN is forced to operate at low speed only. And, the IFAN is turned off with the COMP.
2. The unit operates in either the "Dry-on" state or the "Dry-off" state. If RT = SPT, the unit will operate in "Dry-off" state. The COMP is forced to operate for 6 min after it has stopped working for 15 min. If RT > SPT, the unit will operate in "Dry-on" state. The COMP is forced off for 3.5 min after it has been working for 15 min.

Note 1: COMP is forced off in Dry-on state.
Note 2: COMP is forced to operate in Dry-off state.

5 Fan Mode Operation

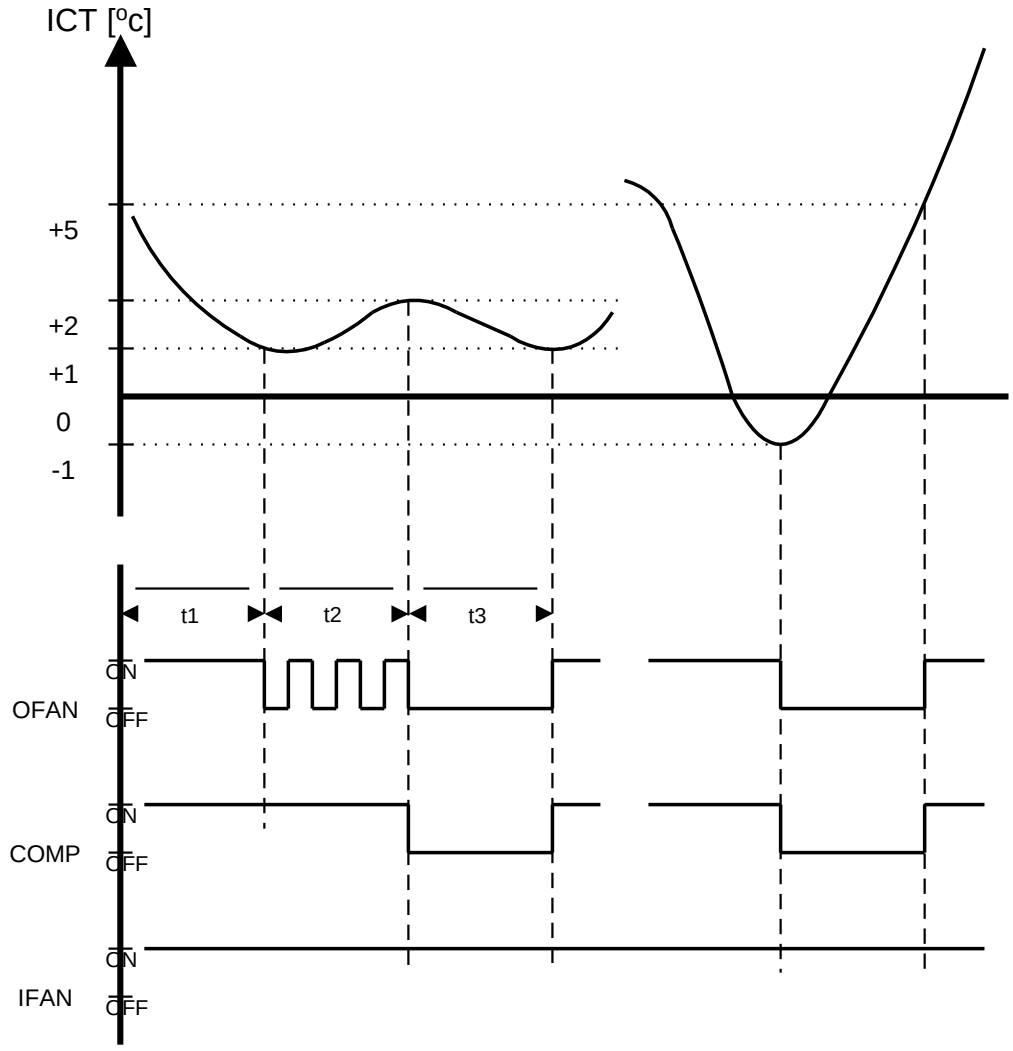
In Fan Mode, the indoor fan is turned on to improve the air circulation in the room. COMP and OFAN remain OFF all the time.

Note: If the user has selected the Auto Fan Speed setting, the IFAN speed would be selected by the unit automatically according to the difference between RT and SPT, as in Cool Mode.

6 Protection Operations in Cool and Dry Modes

1. Indoor Coil Defrost Protection

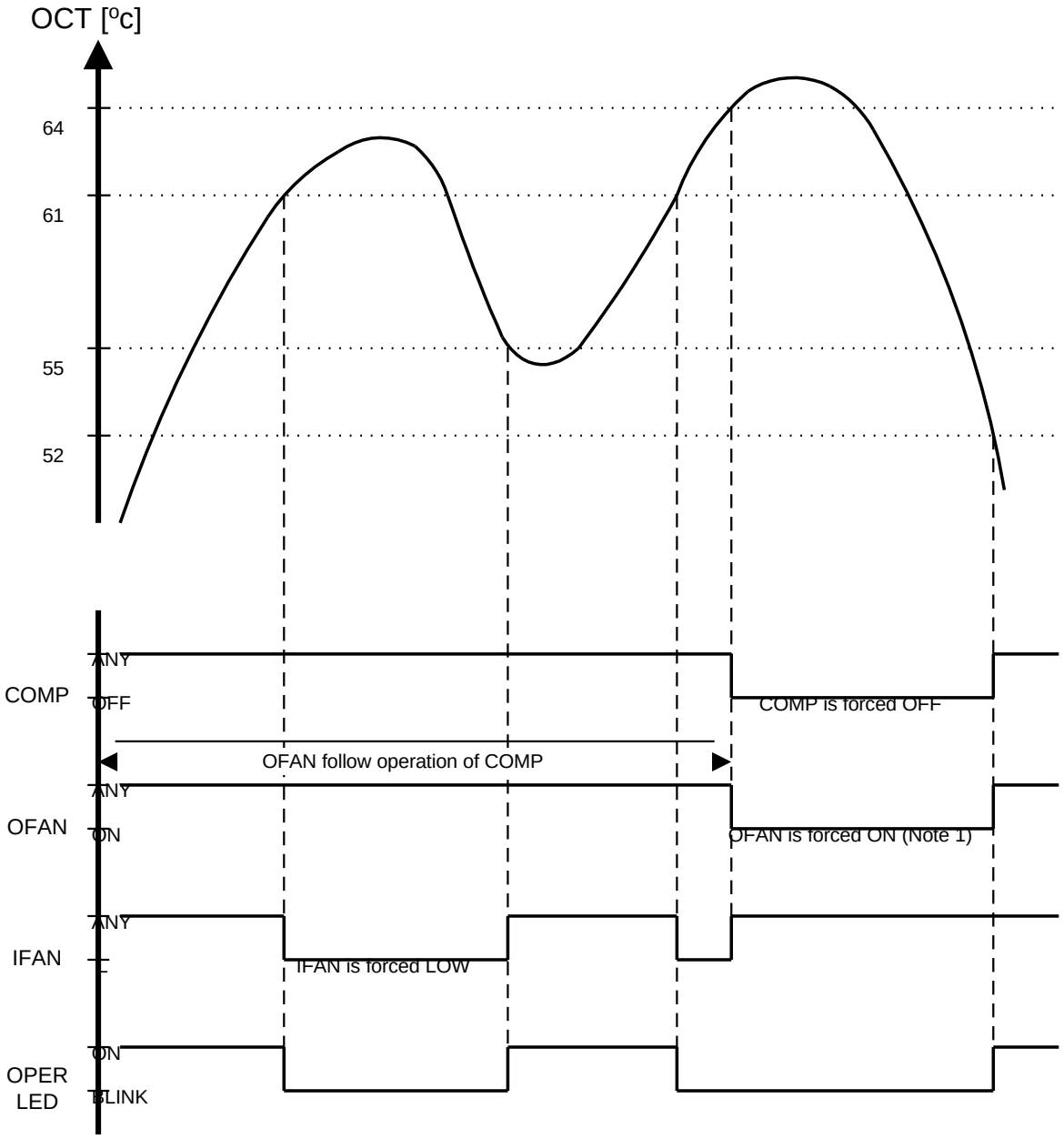
   The in-coil defrost protection can prevent the ice formation at the in-coil when the ambient temperature is low.



t1 = 5 min minimum for each COMP starting
t2 = OFAN cycling (alternate between ON and OFF every 30 sec) for 20 min maximum
t3 = COMP and OFAN stop for 10 min minimum

2. Outdoor Coil High Pressure Protection

The out-coil high pressure protection prevent the build up of high pressure at the out-coil during cooling operation.

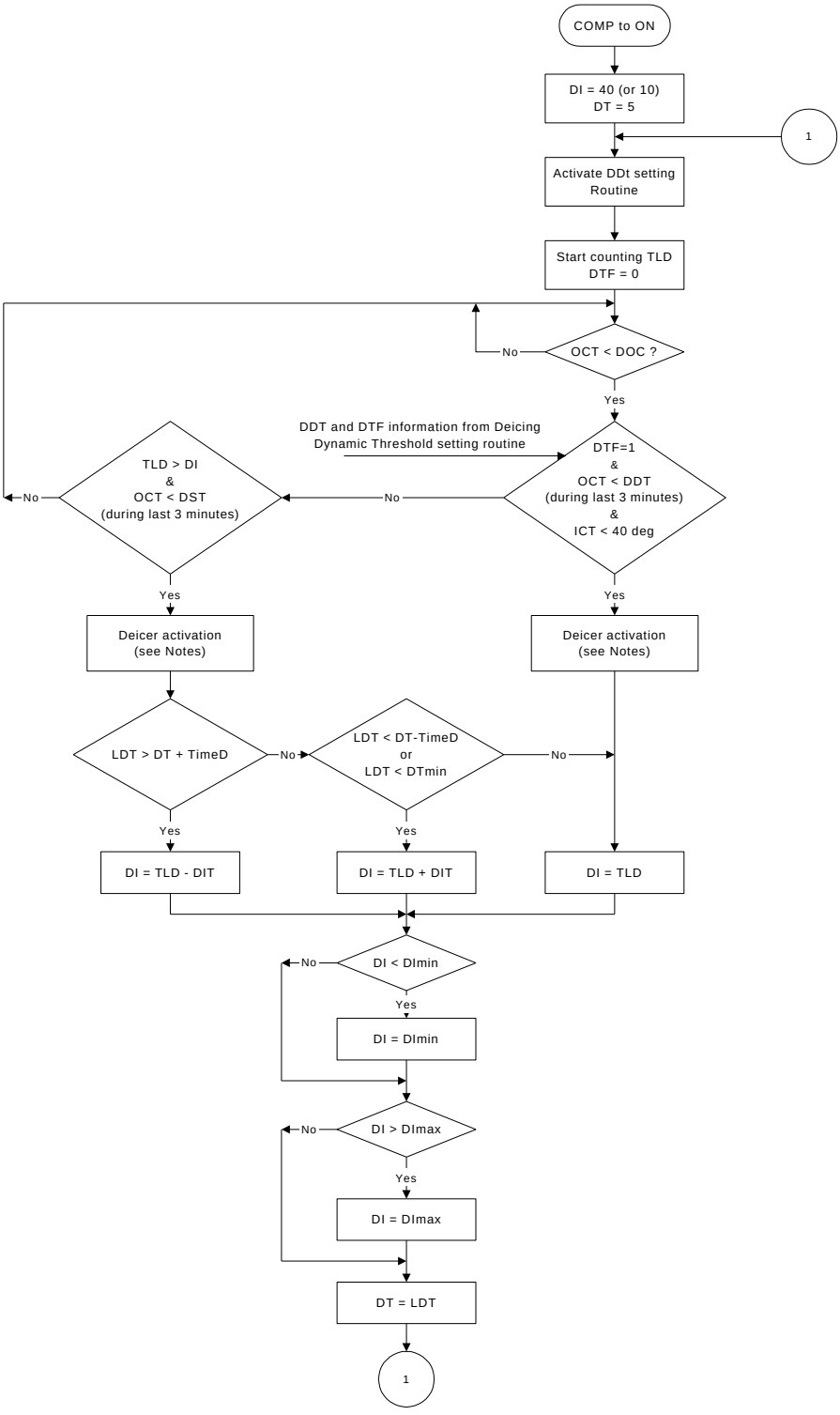


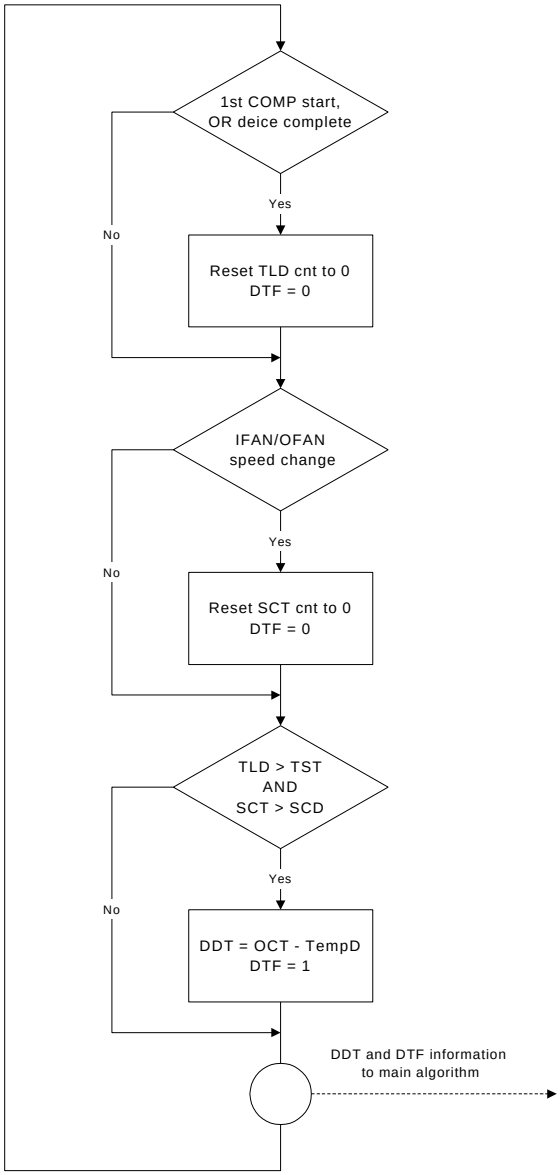
Note 1: In some applications, the outdoor fan and the compressor are controlled together by the COMP relay output from the controller. In this case, it will take more time for the out-coil to cool down during the high pressure protection, because the outdoor fan will be turned off with the compressor instead of working as in the graph above.

7 Protection Operations in Heat Mode

7-1 Outdoor Coil Deice Protection

The deice process is controlled by an Ice Detection Algorithm (IDA). The IDA is an unique control algorithm incorporated to maintain optimal utilization of the heat pump capacity, especially in below-zero outdoor temperature condition. The out-coil deicing will be activated not only by static temperature detection as normally done, but also while ice forming is detected on the out-coil.





Explanation:

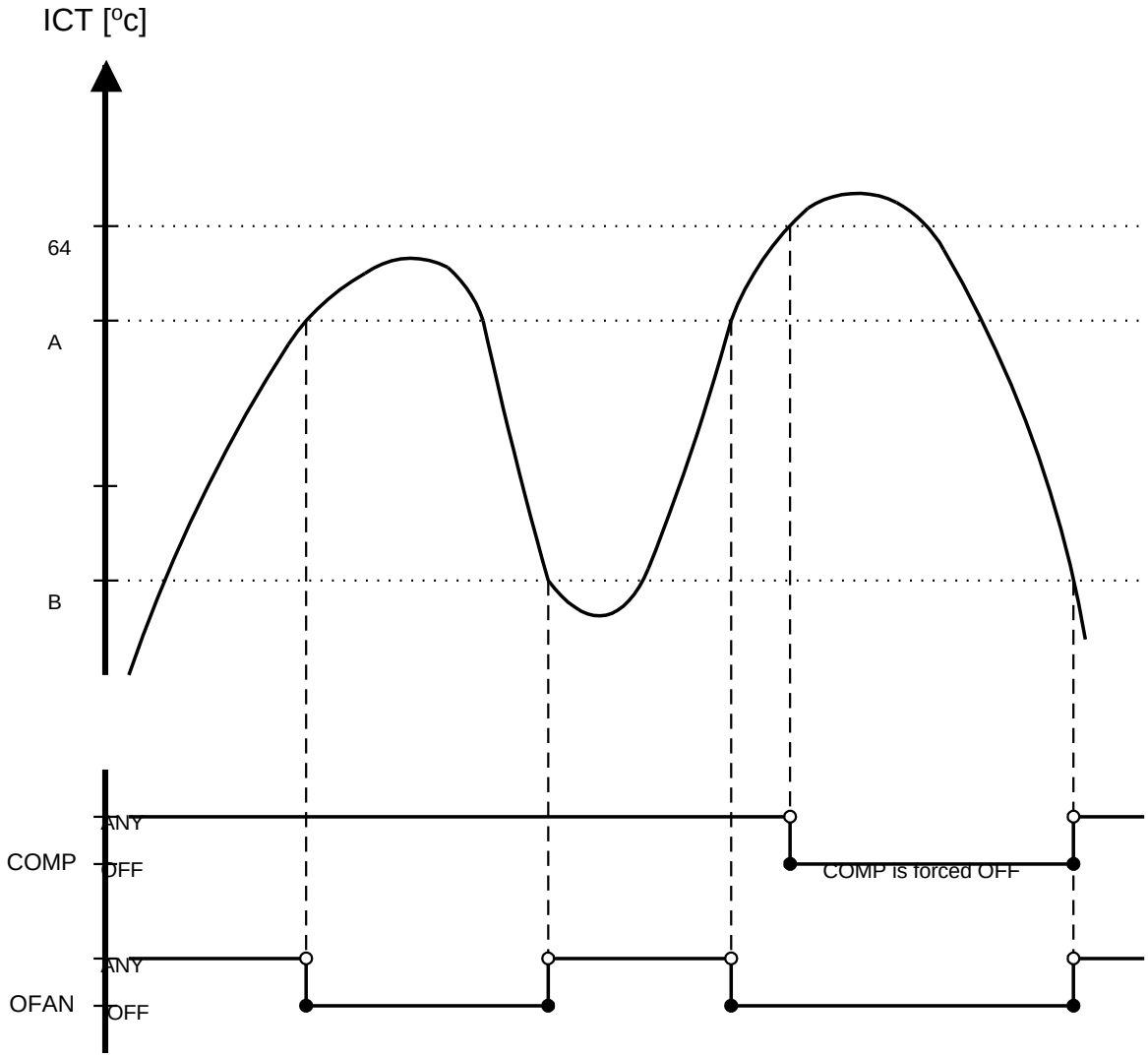
The “Ice Forming Detection” will be done by two algorithms –

1. In Dynamic Temp Detection, the ice formation will be detected by
   (i) Compare the OCT with a Deicing Dynamic Temperature Threshold, and
   (ii) Detect the drop in ICT which accompany the ice formation.
2. The Static Temp Detection will be done by comparing the OCT with a Deicing Static Temperature Threshold.

The Deicing Data Record is used to determine the time delay between two deicing cycles. In general, the time delay will be increased if the last deicing cycle can be completed quickly.

7-2 Indoor Coil High Pressure Protection in Heat Mode

The in-coil high pressure protection prevent the build up of high pressure at the in-coil during heating operation.



Note:

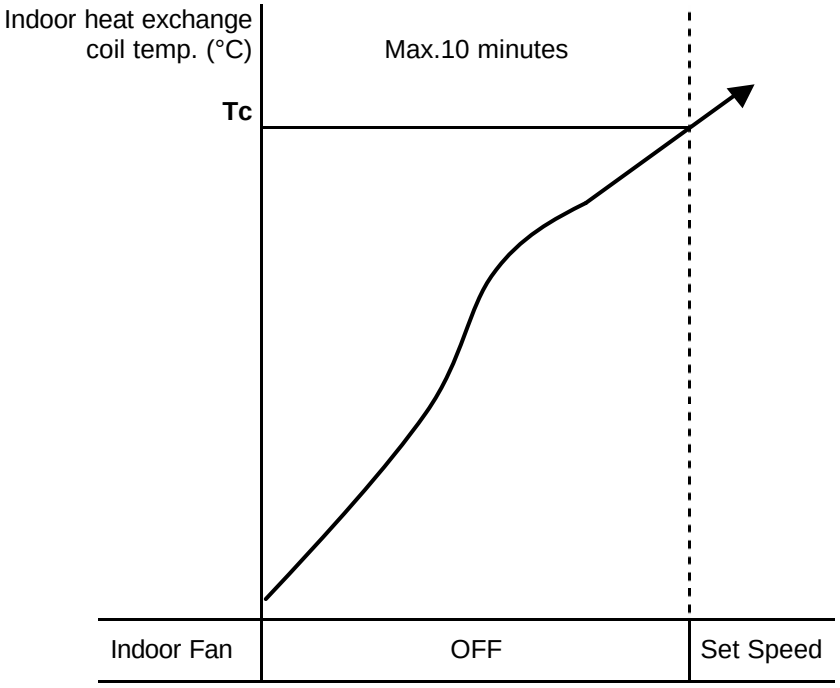
The operation temperatures shown as A and B in the chart differ by models.

	WSA-78	WSA-98	WSA-128
A	50	54	58
B	42	45	50

8 Cold Draft Prevention (Heating)

- This function controls indoor fan speed so a strong draft of cold air will not blow out before the indoor heat exchange coil have sufficiently warmed up.

- When 10 minutes has elapsed, the fan speed is automatically switched to set speed regardless of indoor heat exchange coil temperature.



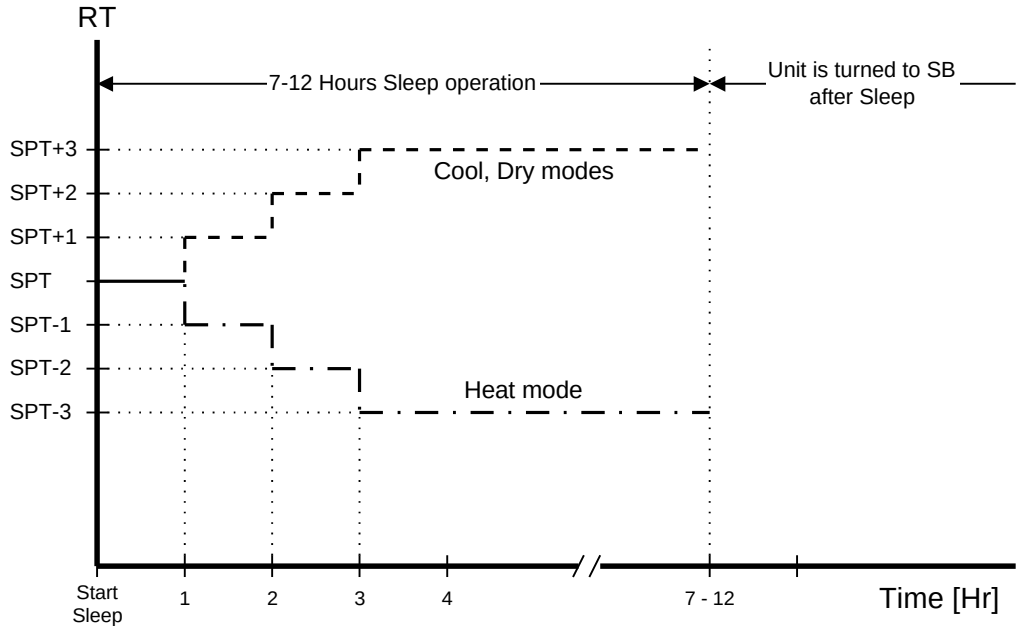
NOTE

- The operation temperature shown as **Tc** in the chart differ by models.

	WSA-78	WSA-98	WSA-128
Tc	32	32	34

9 Sleep Function

Room temperature is automatically controlled to compensate for body temperature variations while sleeping. This mode of operation is designed for maximal comfort in both COOL and HEAT modes.



10 Daily Timer Function

Unit can be programmed to be ON and OFF automatically at preset time everyday, by using a remote controller. The resolutions of the ON/OFF timers are 10 min.

11 IFEEL Function

This feature is provided if the unit is used together with a remote controller with the I-FEEL function. When this function is selected, the remote controller sends the room temperature measured by its build-in thermistor to the air con for more accurate temperature control.

12 Manual Unit Control and LED indicators

The push button switch and the LED indicators on the display panel let the user to control the unit operation without a remote controller. Their operations are provided below.

LED indicators:

STAND BY INDICATOR	1. Lights up when the Air Conditioner is connected to power and ready to receive the R/C commands 2. Blinks continuously in case of any thermistor failure.
OPERATION INDICATOR	1. Lights up in operation mode (Note: OFF in standby mode). 2. Blinks for 0.5 sec., to announce that a R/C infrared signal has been received and stored. 3. Blinks continuously during ? OCT High Pressure Protection Mode ? Deicing in Heating Mode
TIMER INDICATOR	1. Lights up during Timer and Sleep operation. 2. Active On/Off timer setting will become invalid after a power failure. When this happens, the unit is forced to restart in STBY mode, and the Timer Indicator is blinked continuously until (i) the unit is switched to OPER Mode again, or (ii) any message from the R/C is received.

Push Button switches:

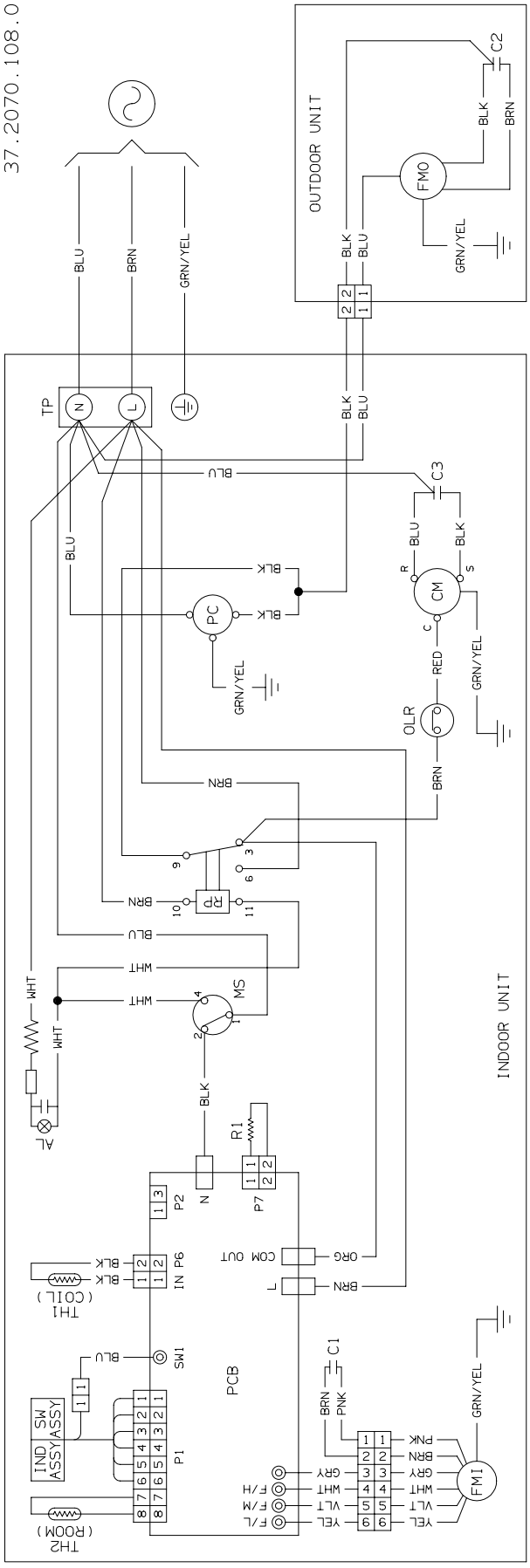
MODE BUTTON (Cool, Heat, SB)	Use to cycle the operation mode of the A/C unit among COOL, HEAT and SB modes, without using the R/C. Every time this switch is pressed, the next operation mode is selected, in the order : SB => Cool Mode => Heat Mode => SB => ...

13 Recovery from Power Failure

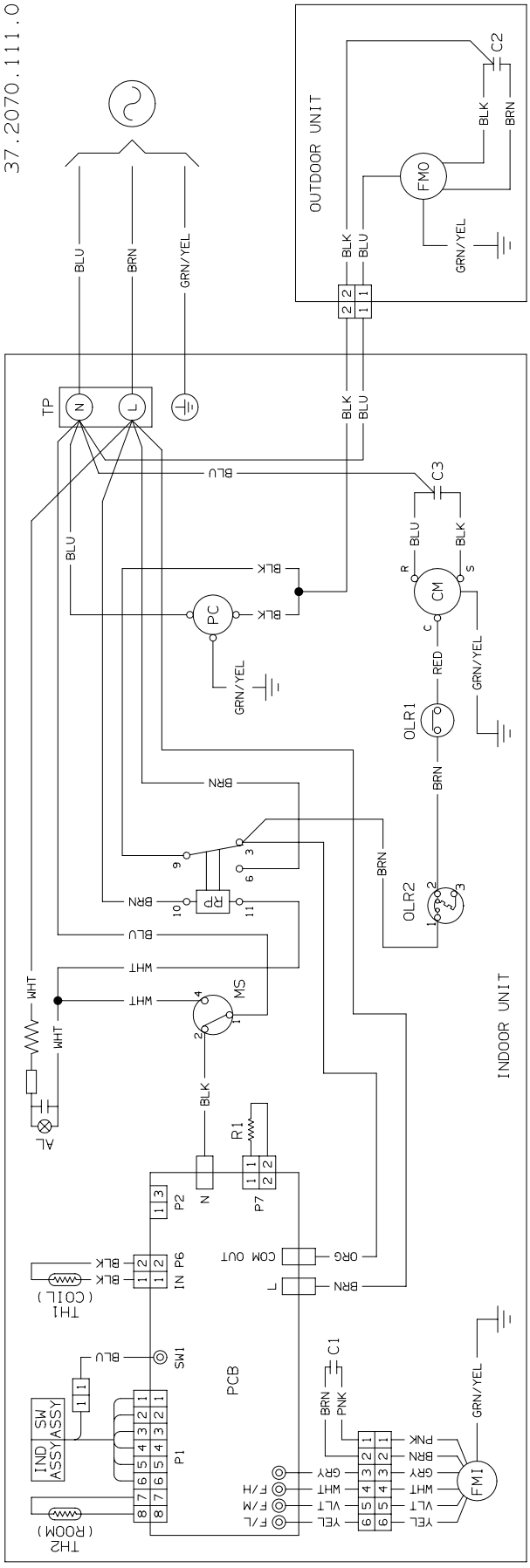
Last unit settings (SPT, operation mode, etc) are saved in the EEPROM in the unit. In case of power failure, these settings are restored automatically.

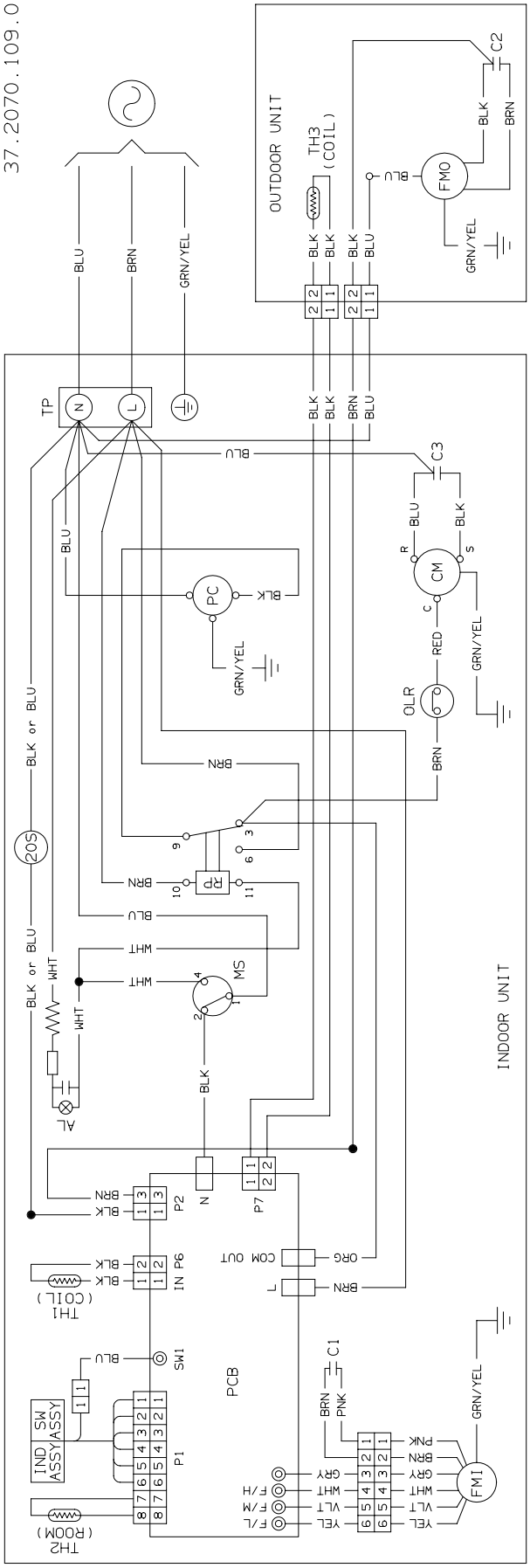
ELECTRIC WIRING - COOLING ONLY VERSION • **SCHEMA ELETTRICO - VERSIONE SOLO RAFFREDDAMENTO** • ***SCHÉMA ÉLECTRIQUE - VERSION FROID SEUL*** • **SCHALTPLAN - AUSFÜHRUNG: NUR KÜLUNG** • ***ESQUEMA ELECTRICO SCHALTPLAN - MODELOS QUE SOLO EINFRIAN*** • **ΗΛΕΚΤΡΙΚΟ ΔΙΑΓΡΑΜΜΑ – ΕΚΔΟΣΗ ΜΟΝΟ ΨΥΞΗ**

AUR101CL



AUR131CL




37.2070.109.0
OUTDOOR UNIT
TH3 (COIL)
FM0
C2
BLK
BRN
BLU
GRN/YEL
TP
N
L
C3
CM
R
S
C
PC
OLR
RED
20S
BLK or BLU
RP
WHT
MS
AL
INDOOR UNIT
PCB
P2
P7
P6
IN
COM OUT
ORG
TH1 (COIL)
SW1
IND ASSY
SW ASSY
P1
TH2 (ROOM)
C1
PNK
GRY
F/H
F/M
F/L
YEL
FM1

H TROUBLESHOOTING

CHECK BEFORE AND AFTER «TROUBLESHOOTING»

(A) Check power supply wiring.

• WARNING: If the following troubleshooting must be done with power being supplied, be careful about any uninsulated live part that can cause ELECTRIC SHOCK.

(B) Check power supply.

• Check that voltage is in specified range (± 10% of the rating).
• Check that power is being supplied

SYSTEMATIC CHART OF «TROUBLESHOOTING»

AIR CONDITIONER DOES NOT OPERATE

A Circuit breaker trips (or fuse blows)

• When circuit breaker is set to ON, it trips in a few moments. (Resetting is not possible).

• Measure insulation resistance there is a possibility of ground fault. If resistance value is 1 MOhm or less, insulation is defective.

B Circuit breaker trips in several minutes after turning air conditioner ON.

① **• There is a possibility of short circuit.**

Check capacity of circuit breaker. Capacity of circuit breaker is suitable?
→ **NO** → Replace it with suitable one. (Larger capacity)

↓ **YES**

Measure resistance of compressor motor winding.

↓ **YES**

Measure resistance of outdoor fan motor winding.

② **• Neither indoor unit nor outdoor unit runs.**

Power is not supplied.

Check power supply. Is power being supplied to wall receptacle?
→ **NO** →
- Circuit breaker is tripped. → Reset the breaker
- Power failure. → Wait for recovery or contact power company.

Check fuse on PCB Ass'y in outdoor unit.

Check fuse on PCB Ass'y in indoor unit for continuity.

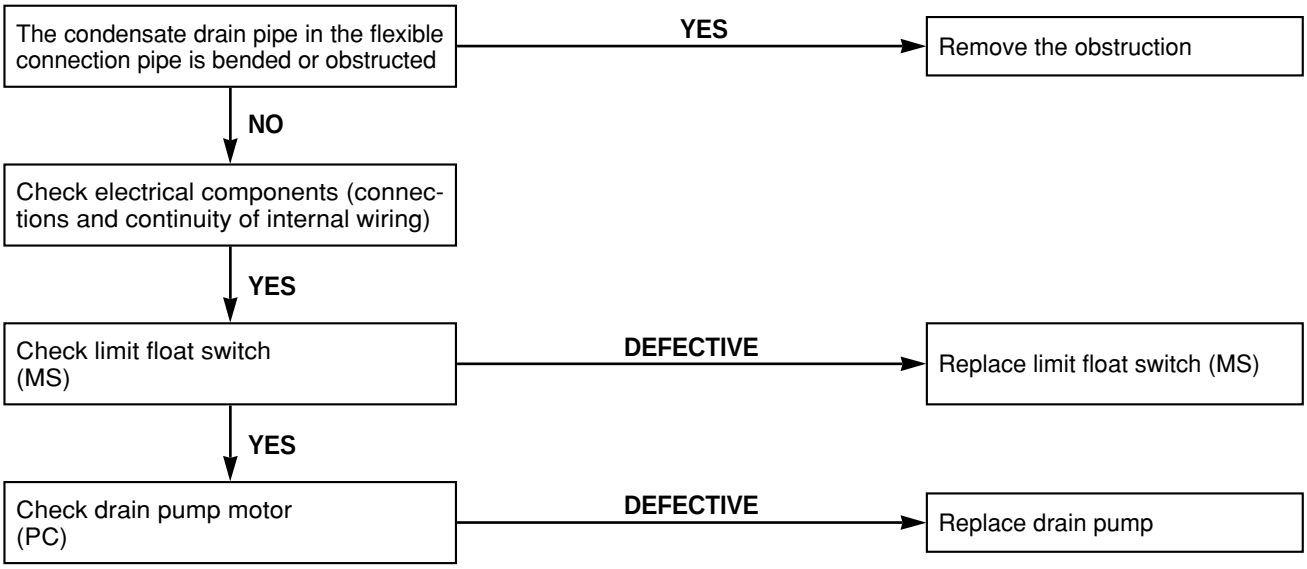
↓ **If fuse blows, there is a possibility of short circuit.**

Measure resistance of indoor fan motor winding.

C Water - level alarm (condensate) is blinking

Malfunctioning of the condensate drainage system to the outdoor unit

NOTE - In case of emergency the air conditioner can work by draining the condensate from the back little pipe into a rather short container, extract the little pipe and remove the cap.

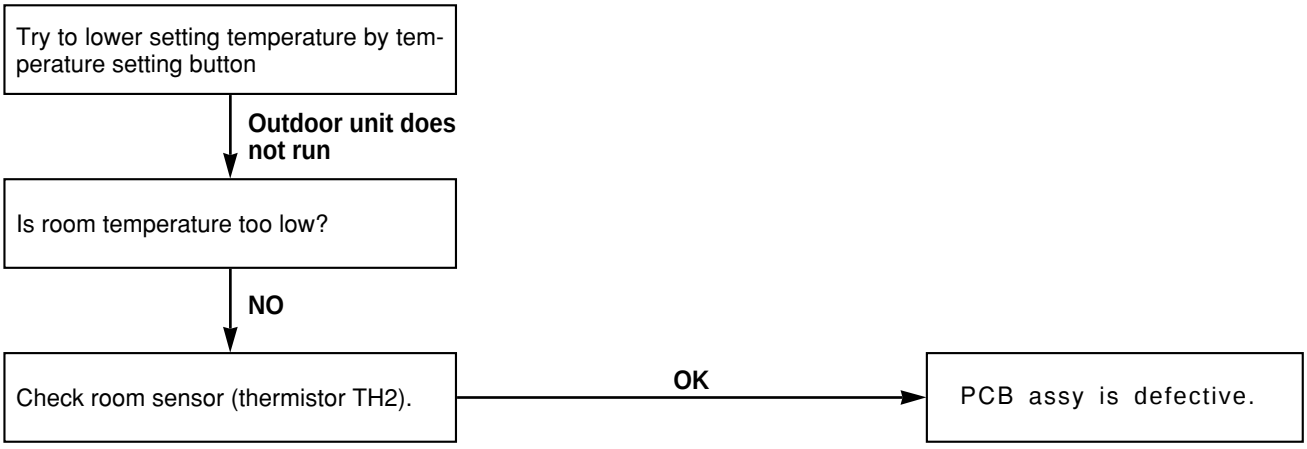


D Only outdoor unit and compressor do not run

Outdoor unit does not run when air conditioner is in following conditions.

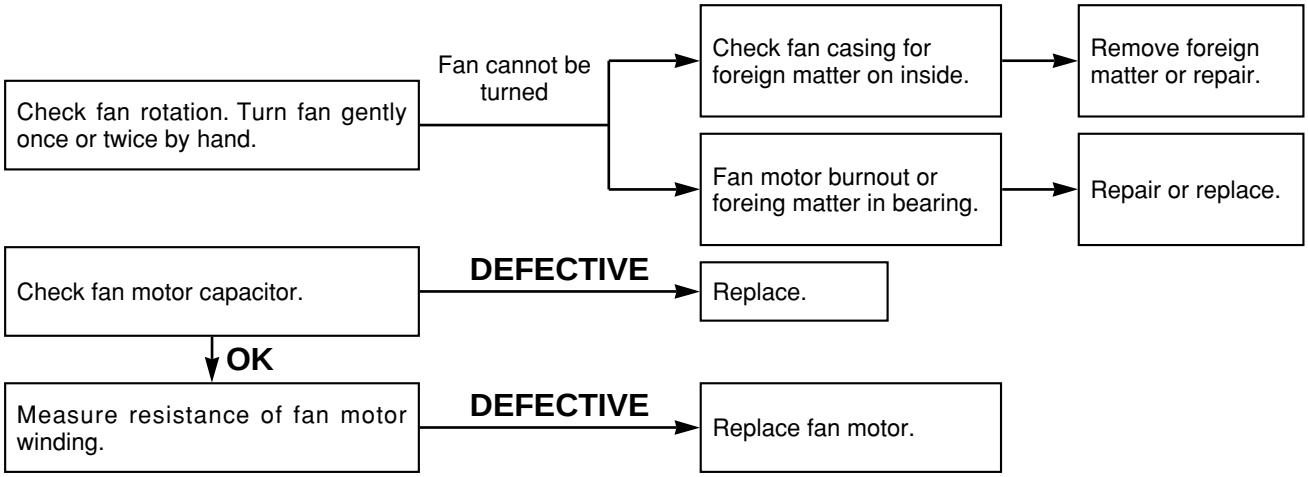
- When the room temperature is below the setting temperature.
- During freeze prevention.

Check setting temperature

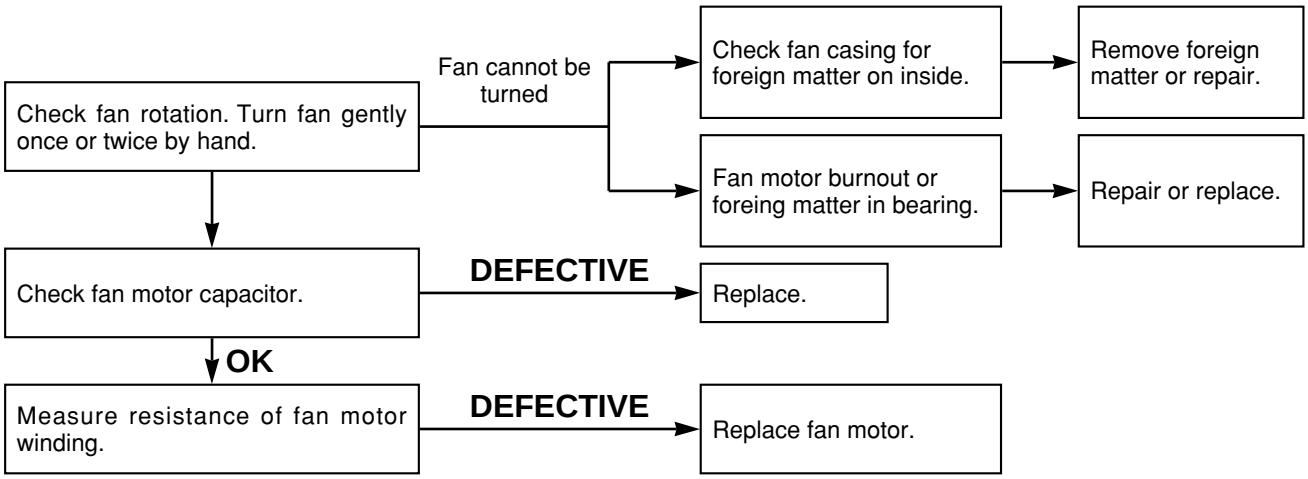

Try to lower setting temperature by temperature setting button
Outdoor unit does not run
Is room temperature too low?
NO
Check room sensor (thermistor TH2).
OK
PCB assy is defective.

E SOME PART OF AIR CONDITIONER DOES NOT OPERATE

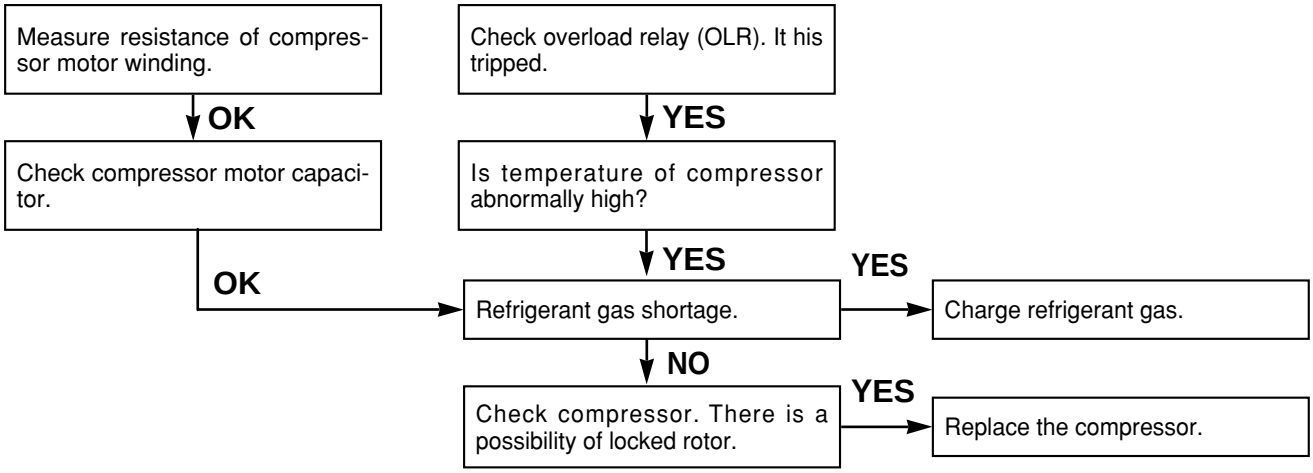
1) ONLY INDOOR FAN DOES NOT RUN


Check fan rotation. Turn fan gently once or twice by hand.
Fan cannot be turned
Check fan casing for foreign matter on inside.
Remove foreign matter or repair.
Fan motor burnout or foreing matter in bearing.
Repair or replace.
Check fan motor capacitor.
DEFECTIVE
Replace.
OK
Measure resistance of fan motor winding.
DEFECTIVE
Replace fan motor.

2) ONLY OUTDOOR FAN DOES NOT RUN

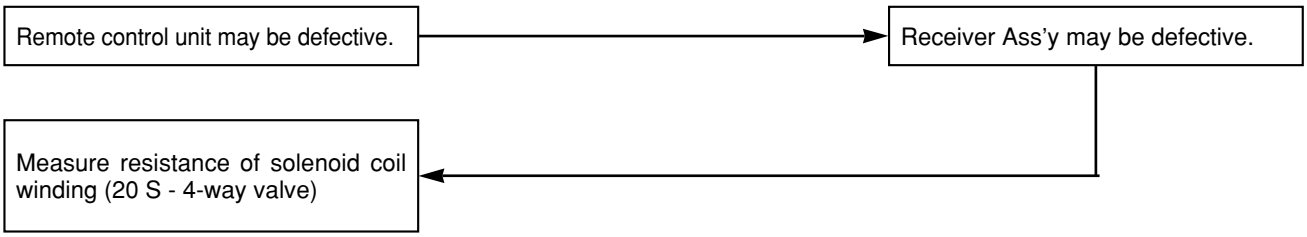

Check fan rotation. Turn fan gently once or twice by hand.
Fan cannot be turned
Check fan casing for foreign matter on inside.
Remove foreign matter or repair.
Fan motor burnout or foreing matter in bearing.
Repair or replace.
Check fan motor capacitor.
DEFECTIVE
Replace.
OK
Measure resistance of fan motor winding.
DEFECTIVE
Replace fan motor.

3) ONLY COMPRESSOR MOTOR DOES NOT RUN

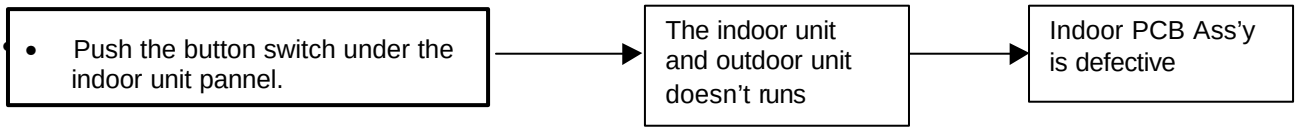


F AIR CONDITIONER OPERATES, BUT ABNORMALITIES ARE OBSERVED (HEAT PUMP MODEL)

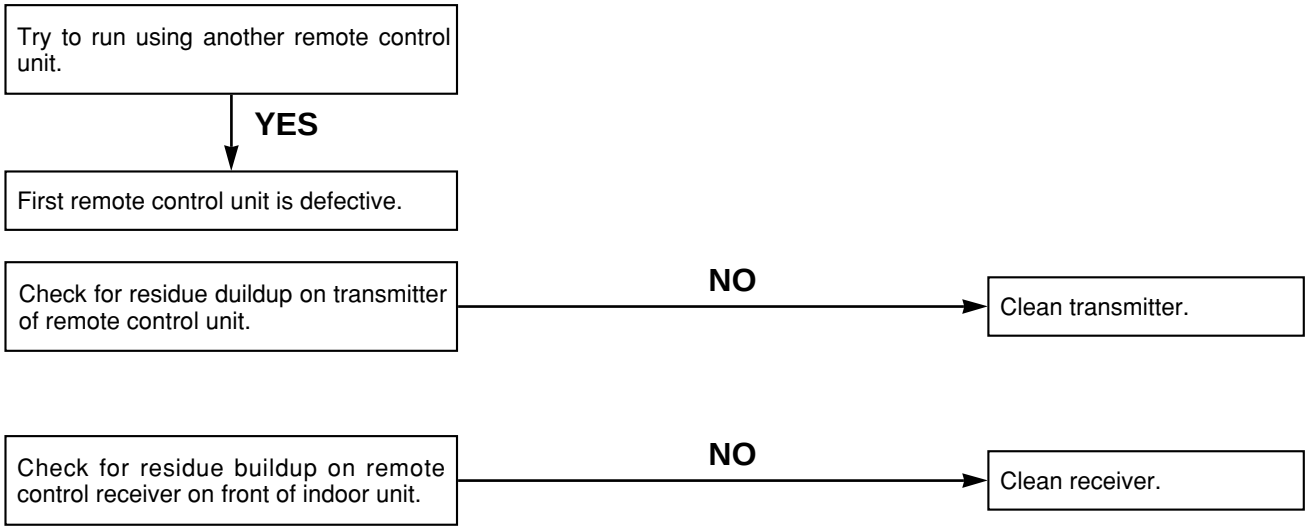
1) Operation does not switch from heat to cool (or cool to heat)


Remote control unit may be defective.
Receiver Ass'y may be defective.
Measure resistance of solenoid coil winding (20 S - 4-way valve)

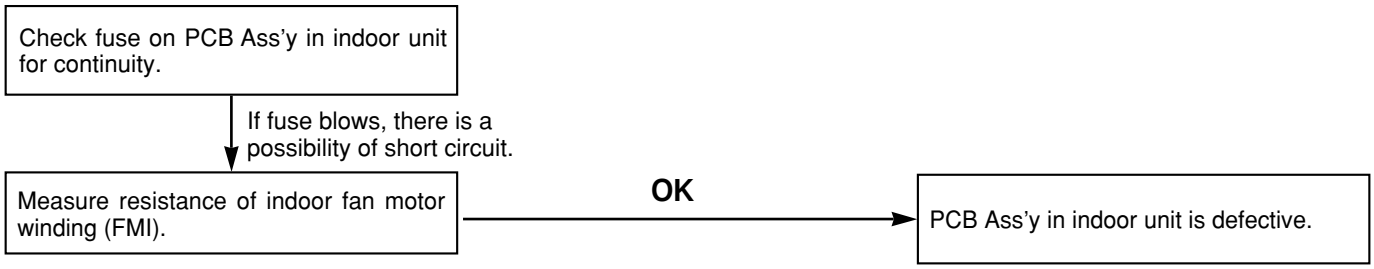
(2) Check "PUSH BUTTON" in indoor unit on monitor panel


• Push the button switch under the indoor unit pannel.
The indoor unit and outdoor unit doesn't runs
Indoor PCB Ass'y is defective

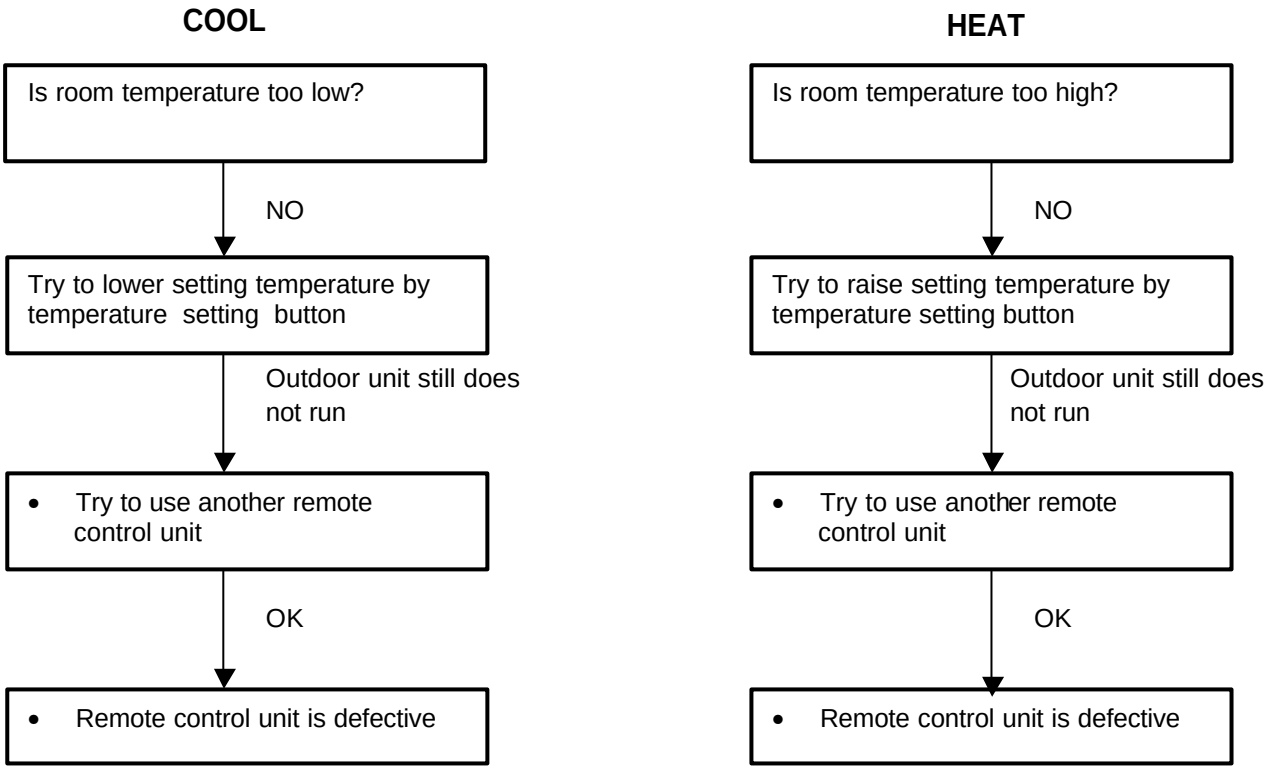
(3) Check remote control unit.


Try to run using another remote control unit.
YES
First remote control unit is defective.
Check for residue duildup on transmitter of remote control unit.
NO
Clean transmitter.
Check for residue buildup on remote control receiver on front of indoor unit.
NO
Clean receiver.

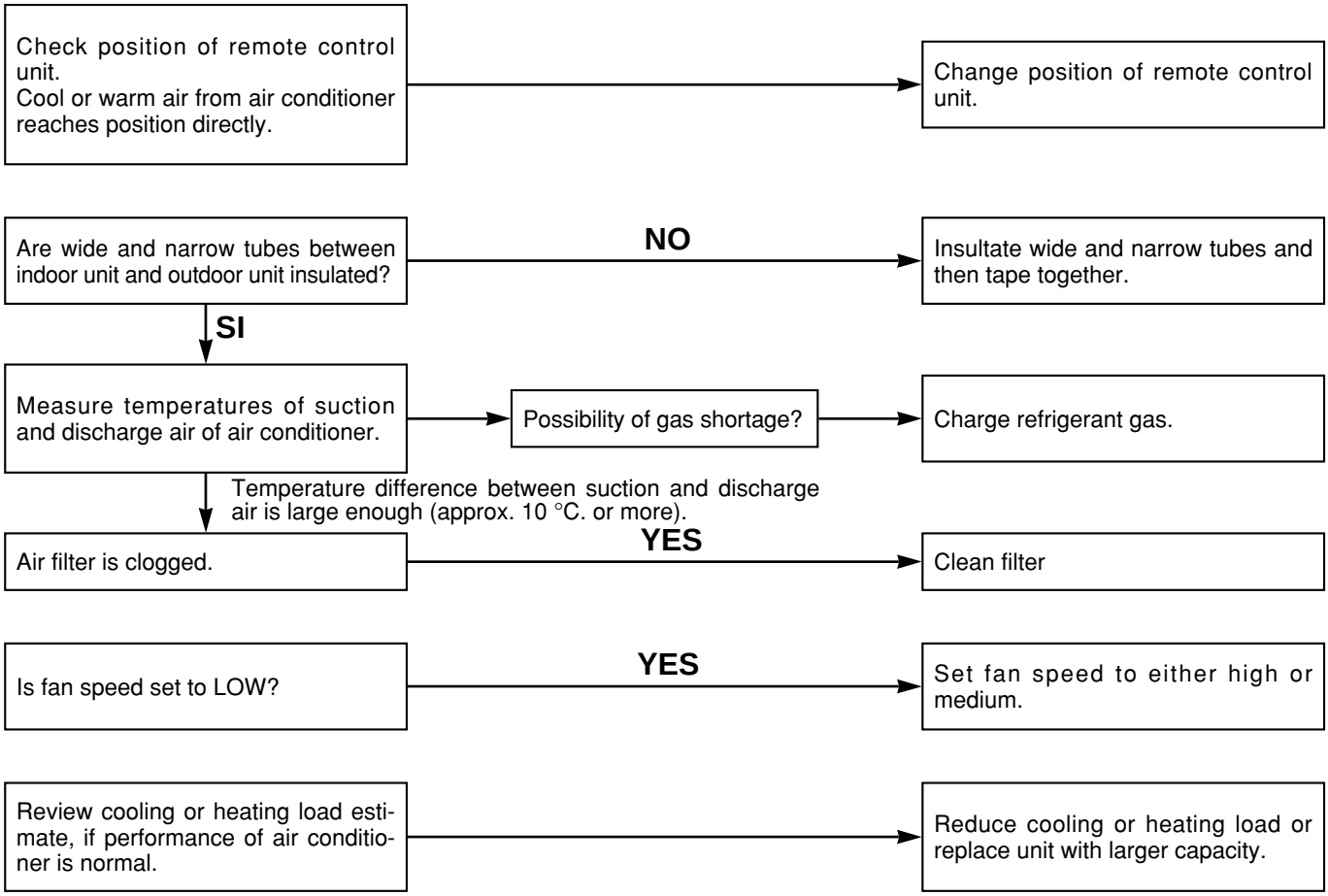
(4) Check fuse on PCB Ass'y in indoor unit.


Check fuse on PCB Ass'y in indoor unit for continuity.
If fuse blows, there is a possibility of short circuit.
Measure resistance of indoor fan motor winding (FMI).
OK
PCB Ass'y in indoor unit is defective.

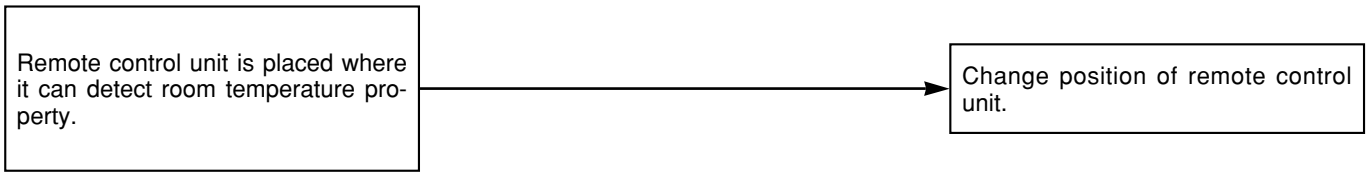
(5) Check setting temperature.


COOL
Is room temperature too low?
NO
Try to lower setting temperature by temperature setting button
Outdoor unit still does not run
• Try to use another remote control unit
OK
• Remote control unit is defective
HEAT
Is room temperature too high?
NO
Try to raise setting temperature by temperature setting button
Outdoor unit still does not run
• Try to use another remote control unit
OK
• Remote control unit is defective

G POOR COOLING OR POOR HEATING

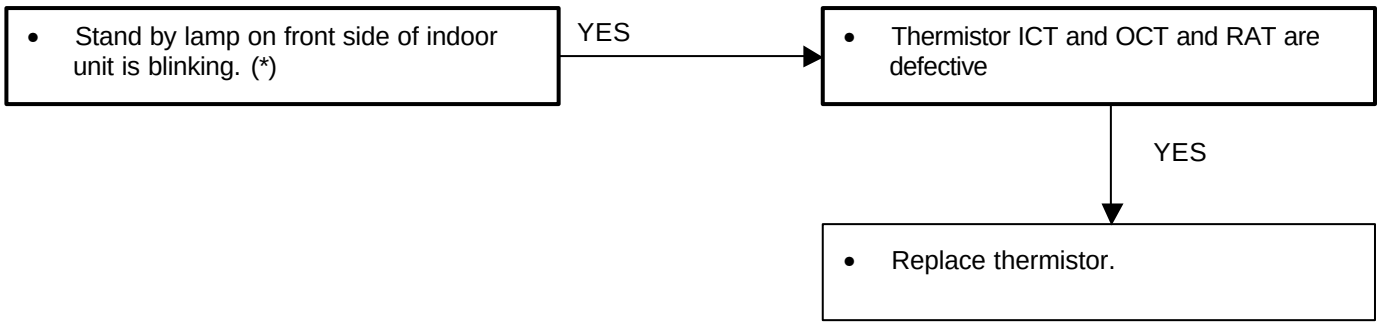

Check position of remote control unit.
Cool or warm air from air conditioner reaches position directly.
Change position of remote control unit.
Are wide and narrow tubes between indoor unit and outdoor unit insulated?
NO
Insultate wide and narrow tubes and then tape together.
SI
Measure temperatures of suction and discharge air of air conditioner.
Possibility of gas shortage?
Charge refrigerant gas.
Temperature difference between suction and discharge air is large enough (approx. 10 °C. or more).
Air filter is clogged.
YES
Clean filter
Is fan speed set to LOW?
YES
Set fan speed to either high or medium.
Review cooling or heating load estimate, if performance of air conditioner is normal.
Reduce cooling or heating load or replace unit with larger capacity.

H EXCESSIVE COOLING OR HEATING



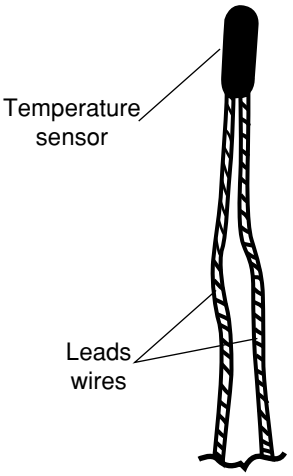
I IF A SENSOR IS DEFECTIVE

ICT (indoor coil sensor) OCT (outdoor coil sensor) RAT (room ambient temperature) are defective.


• Stand by lamp on front side of indoor unit is blinking. (*)
YES
• Thermistor ICT and OCT and RAT are defective
YES
• Replace thermistor.

NOTE Allarm signal (*)

Stanby lamp on the front side of the indoor unit will blink when the thermistor is defective.
At the same time the outdoor unit will stop. Indoor operate only for ventilation.



I PROCEDURE FOR THE REFRIGERANT CHARGE RESTORING

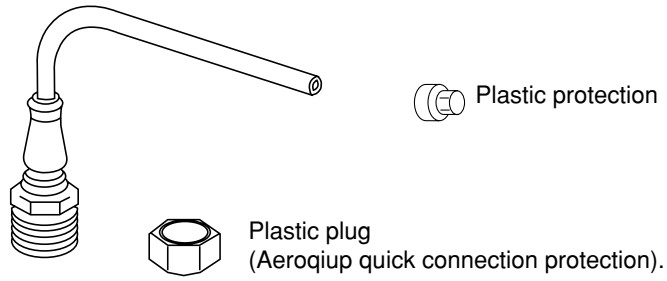
TOTAL REFRIGERANT CHARGE R407C

	AUR101CL	AUR131CL	AUR101HL
STANDARD UNIT	910 g	1220 g	1030 g
UNIT WITH EXTENSION KIT OF 2 m	960 g	1270 g	1090 g
UNIT WITH EXTENSION KIT OF 4 m	1010 g	1320 g	1150 g

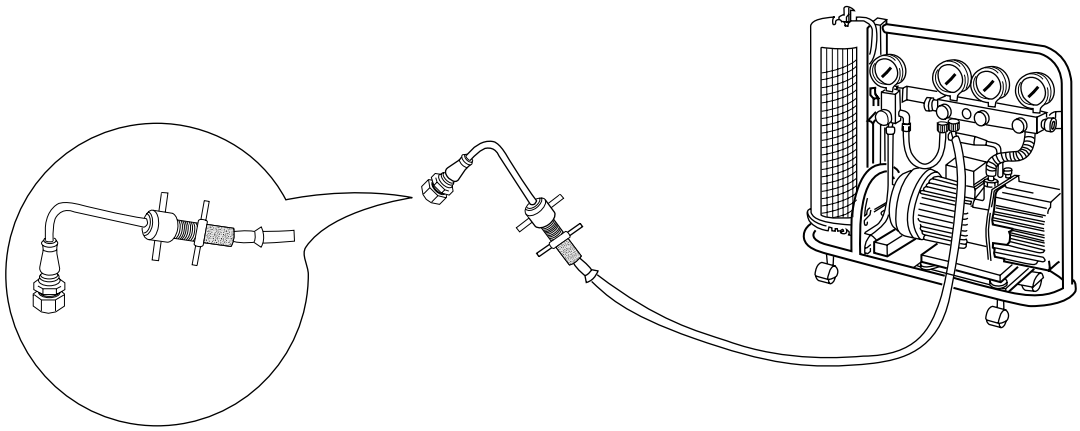
NOTE: The extension kits are supplied precharged.

In order to ensure quick and safe connection to the vacuum pump, use the connection device which can be bought near Argo Service Dept.

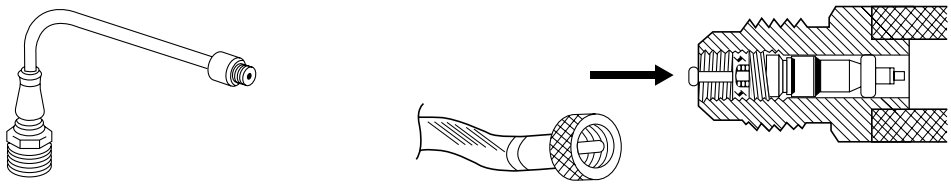
The service connection kit is supplied with 3/8" male aeroquip and copper tube at the other end.



Connection with the vacuum pump through a throttle valve, 8 mm diameter.



Connection to the vacuum pump through a service valve (plunger) welded to the service connection (quick connection to the pump pipes).



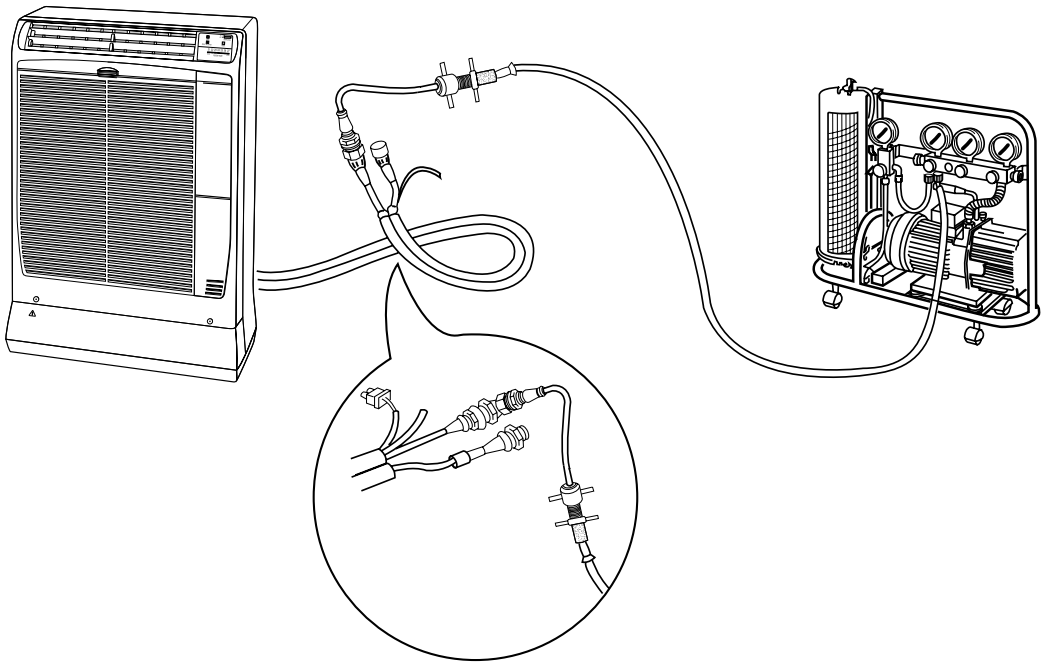
Reload of the system after a maintenance intervention or after an uncorrect detach of the connection pipe.
Before disconnecting the unit, pay attention to follow the warning shown hereunder.

CAUTION **Before disassembling the outdoor unit (disjoin the rapid couplings): connect the air conditioner to a socket and let the compressor work for 5 minutes. In case of refrigerant small leakage during the disconnecting operation of the outdoor unit, reconnect the rapid and beat lightly with a spaller on the rapid couplings brass body (exagonal part). Apply anti-freeze oil to the rapid couplings before reconnecting therm.**

Before starting the bleeding of the system, it is advisable to oil the quick connections with antifreezing oil (HAB OIL), and then connect and disconnect once the system, in order ensure that seals of the piston.

Indoor unit bleeding

Joint the service connection to the low pressure pipe of the vacuum pump, according to above instructions, the screw it to the female aeroquip connection of the indoor/outdoor connection pipe.
Make vacuum inside the indoor unit (10 mm Hg. abs.).

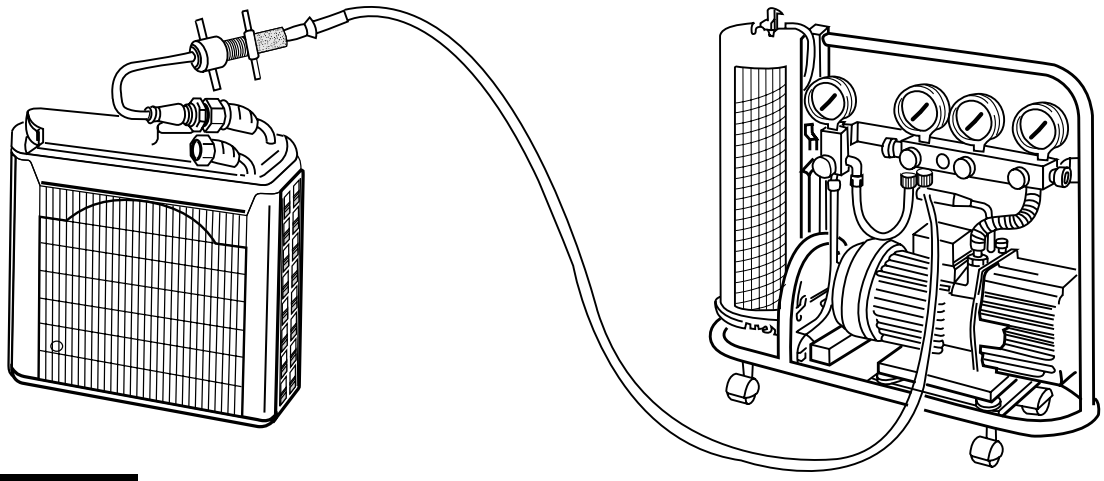


Restore the freon charge (see table). Then detach the vacuum pump (check the sealing of the aeroquip quick connections).

WARNING

The full charge of refrigerant must be restored to the indoor unit.

Outdoor unit (little bag) bleeding.
Connect the vacuum pump already equipped with service connection to the female aeroquip connector of outdoor unit (little bag) then to perform vacuum operation (vacuum 10 mm Hg abs.).



WARNING

Inside the outdoor unit make vacuum only, without freon charge.
Oil both indoor and outdoor unit aeroquip connections with antifreezing oil (HAB OIL), then join the units (torque 150 ÷ 165 kgcm). Wait 10 minutes to equalize the pressure inside the system and then start the air conditioner, checking anyway the seal of the connections. Place the cover on the outdoor unit top.

L CHECKING ELECTRICAL COMPONENTS

1) Measurement of Insulation Resistance

• The insulation is in good condition if the resistance exceeds 1MOhm.

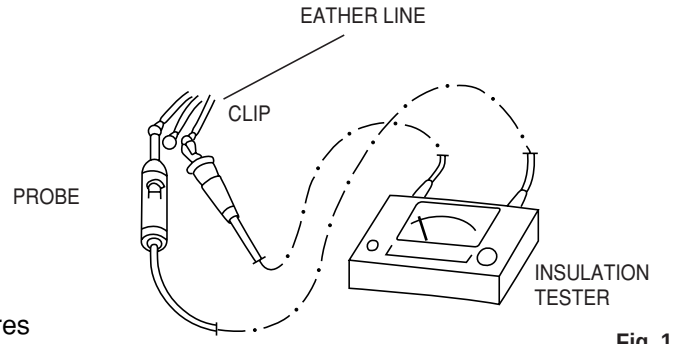


Fig. 1

a) Power Supply Wires

Clamp the earthed wire of the power supply wires with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on either of the power wires (Fig. 1).
Then measure the resistance between the earthed wire and the other power wires (Fig. 1).

b) Indoor unit

Clamp an aluminium plate fin or copper tube with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on N terminal, and then on L terminal the terminal plate (Fig. 2).

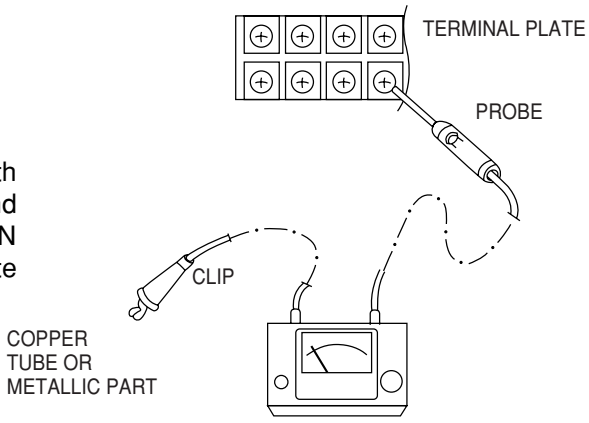


Fig. 2

c) Measurement of Insulation Resistance for Electrical Parts

Disconnect the lead wires of the disired electric part from terminal plate, PCB Ass'y, capacitor, etc. Similarly disconnect the connector. Then measure the insuration resistance. (Fig. 1 to 4).
Refer to Electric Wiring Diagram

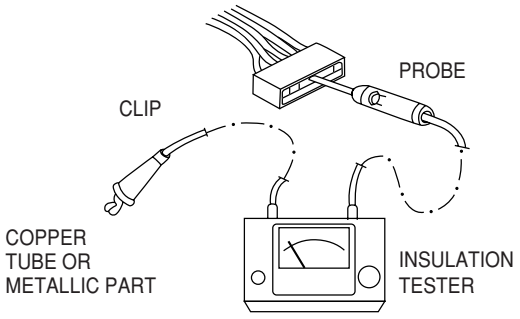


Fig. 3

NOTE

• If the probe cannot enter the poles because the hole is too narrow then use a probe with a thinner pin.

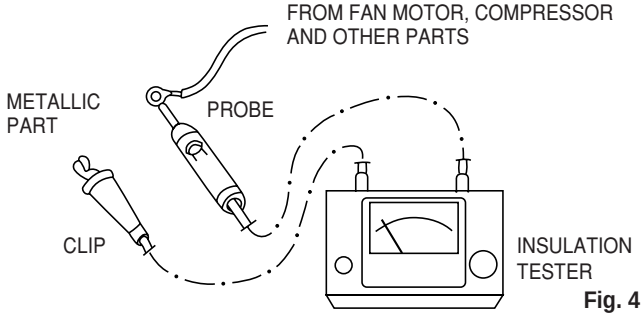


Fig. 4

2) Checking Continuity of Fuse on PCB Ass'y

• Remove PCB Ass'y from electrical component box. (Fig. 5).

• Then pull out the fuse from PCB Ass'y.

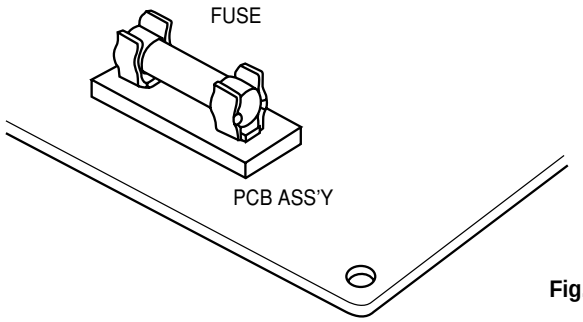


Fig. 5

• Check continuity of fuse by the multimeter (Fig. 6).

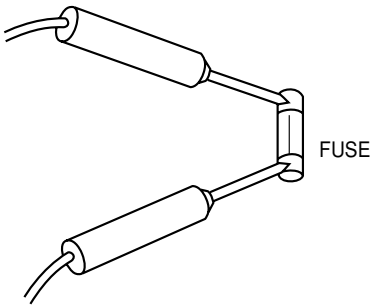


Fig. 6

3) Checking Motor Capacitor

• Remove the lead wires from the capacitor terminals, and then place a probe on the capacitor terminals as shown in Fig. 7. Observe the deflection of the pointer, setting the resistance measuring range of the multimeter to the maximum value.
The capacitor is "good" if the pointer bounces to a great extent and the gradually returns to its original position.
The range of deflection and deflection time deffer according to capacity of the capacitor.

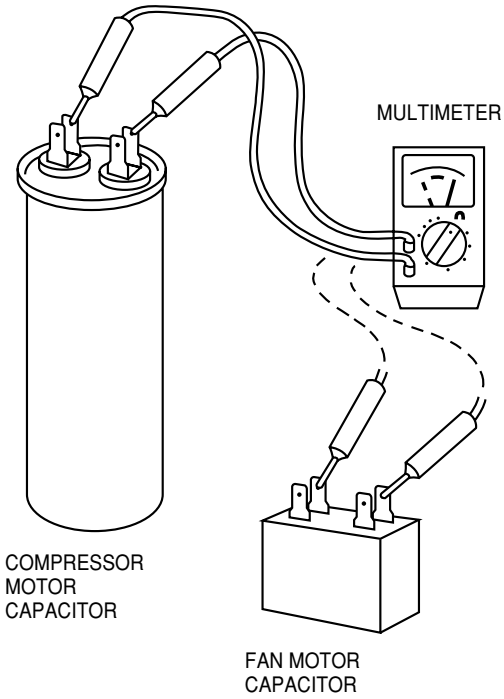


Fig. 7

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